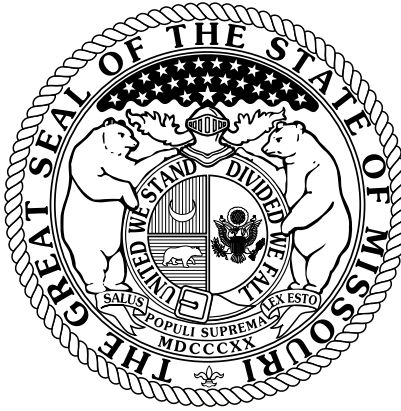




# STRATEGIES FOR PREVENTING CHILD DEATHS IN MISSOURI

**The Missouri Child Fatality  
Review Program Annual Report  
for 2000**





**Bob Holden, Governor**  
State of Missouri

**Dana Katherine Martin, Director**  
Missouri Department of Social Services

**Harry D. Williams, Director**  
Division of Legal Services



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Missouri's Foundation for Child Abuse Prevention  
1719 Southridge  
Jefferson City, MO 65109  
(573) 751-5147  
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Office of Administration

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# **Strategies for Preventing Child Deaths in Missouri**

## **The Missouri Child Fatality Review Program Annual Report for 2000**



**Missouri Department of Social Services  
Division of Legal Services**

**State Technical Assistance Team  
2724 Merchants Drive  
Jefferson City, Missouri 65109  
(800) 487-1626  
(573) 751-5980**

**E-mail: [dssstat@mail.state.mo.us](mailto:dssstat@mail.state.mo.us)**

**Web site: [www.dss.state.mo/stat/index.htm](http://www.dss.state.mo/stat/index.htm)**

**Published January 2002**

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**BOB HOLDEN**  
GOVERNOR

**MISSOURI  
DEPARTMENT OF SOCIAL SERVICES  
DIVISION OF LEGAL SERVICES**

P.O. BOX 1527  
JEFFERSON CITY  
65102-1527  
TELEPHONE: 573-751-3229, FAX: 573-526-1484

**RELAY MISSOURI**  
*for hearing and speech impaired*  
TEXT TELEPHONE  
1-800-735-2966  
VOICE  
1-800-735-2466

December 14, 2001

Dear Friends:

Based on the need to better understand how and why children die, Missouri's Child Fatality Review Program (CFRP) was implemented on January 1, 1992. While the program has evolved and adapted to meet new challenges, the objectives have remained the same – identifying potentially fatal risks to infants and children, and responding with multi-level prevention strategies.

Most states now have some form of child fatality review; however, Missouri's approach remains unique in that it is community driven with a statewide scope. The State Technical Assistance Team (STAT) manages the CFRP and also provides a comprehensive and integrated system of services and support to the entire child protection community. Essentially, the 115 county-based, multidisciplinary CFRP panels can respond immediately to risks in their communities identified during the review process. What they learn is collected on standardized data collection forms and submitted to a database that identifies statewide trends and patterns, that may require policy and legislative considerations.

The 2000 Child Fatality Review Program Annual Report is the result of work and contributions by the hundreds of CFRP panel members and their supporting agencies. Their work is a true expression of advocacy for Missouri's children and families.

Sincerely,

A handwritten signature in dark ink, appearing to read "Harry D. Williams".  
Harry D. Williams  
Director

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## *Dedication*

**This report reflects the work of many dedicated professionals throughout the state of Missouri. Through better understanding of how and why children die, we strive to improve and protect the lives of Missouri's youngest citizens. We will always remember that each number represents a precious life lost. We dedicate this report to these children and their families.**

# MISSOURI CHILD FATALITY REVIEW PROGRAM

## Background and Overview

The Kivlahan/Ewigman, Missouri Child Fatality Study was presented at the Department of Social Services Child Abuse/Neglect Conference in 1989. A summary of the study and resulting legislation (1991, House Bill 185) appeared in the Fall 1991 edition of *Public Welfare* magazine. The injury deaths of 384 children, ages 0-4, between 1983-1986 were examined using multiple data sources. Researchers wanted to know three important things:

1. What were the causes of fatal injuries in Missouri children?
  2. Who were the children who died of injuries?
  3. How many child abuse and neglect cases were underreported and/or misclassified?
- The Child Fatality Study demonstrated:
    1. Many fatal child injury cases were inadequately investigated.
    2. Many inadequately supervised children were dying from common household hazards.
    3. Many more children were dying from child abuse and neglect than were previously suspected.
    4. Many child deaths were predictable and preventable.
  - Four recommendations resulted from this study:
    1. All fatalities must be reviewed.
    2. Reviews of child fatalities must occur at the county level.
    3. The child fatality review committees must have complete access to all relevant records.
    4. Data should be collected on standardized forms.

## Missouri Child Fatality Review Program (CFRP)

- House Bill 185 was passed during the 1991 legislative session and implemented in January 1992. Senate Bill 595, passed in 1994, expanded and refined the 1991 legislation. Changes to the CFRP included raising the age for inclusion of all children, birth through 17 years of age, and clarifying confidentiality issues.
- In 1999, a Child Fatality Task Force was appointed to provide recommendations in the areas of prevention of child fatalities and serious injury, crimes and punishment, training and investigation. Many of the legislative recommendations of the Task Force were incorporated into Senate Bills 757 and 602, passed by the Missouri legislature in May 2000.



- Missouri legislation requires that every county in our state (including the City of St. Louis) establish a multidisciplinary panel to examine the deaths of all children under the age of 18. If the death meets specific criteria, or if requested by the coroner/medical examiner, it is referred to the county's multidisciplinary CFRP panel.
- The county CFRP panel system expands and refines the traditional coroner/medical examiner system of reporting and investigating child deaths. It requires that all child deaths are evaluated. The minimum core panel for each county includes:

Coroner/Medical Examiner	Prosecutor
Law Enforcement	Public Health
Family Court	Division of Family Services
Emergency Medical Services	

Optional members may be added at the discretion of the panel.

- The panels do **not** act as investigative bodies. Their purpose is to enhance the knowledge base of the mandated investigators and to evaluate the potential service and prevention interventions for the family and community.
- Of all child deaths in Missouri, about 1300 deaths annually, approximately one-third merit review. To come under review, the cause of the child's death must be unclear, unexplained, or of a suspicious circumstance. All sudden, unexplained deaths of infants one week to one year of age, are required to be reviewed by the CFRP panel. (This is the only age group for which an autopsy is mandatory.)
- The goals of the Child Fatality Review Program include:
  1. Encouraging an immediate community response to child fatalities and associated circumstances.
  2. Development of a database involving ongoing surveillance of all childhood fatalities, using a standardized reporting instrument.
  3. Use of collected data to identify trends and patterns of risk to children.
  4. Initiation of state and local community prevention strategies and other interventions (legislation, agency policy, etc.) that respond to identified risks to children.
  5. Continuous commitment to train each profession involved in the investigation of child fatalities.

# **STATE TECHNICAL ASSISTANCE TEAM AND CHILD FATALITY REVIEW PROGRAM**

## **Missouri State Statutes**

- Section 210.150 and 210.152 (Confidentiality and Reporting of Child Fatalities)
- Section 210.192 and 210.194 (Child Fatality Review Panels)
- Section 210.195 (State Technical Assistance Team - duties)
- Section 210.196 (Child Death Pathologists)
- Section 211.321; 219.061 (Accessibility of juvenile records for child fatality review)
- Section 194.117 (Sudden Infant Death); infant autopsies
- Section 58.452 and 58.722 (Coroner/Medical Examiners responsibilities regarding child fatality review)

## **Confidentiality Issues (RSMo 210.192 to 210.196)**

A proper Child Fatality Review Program (CFRP) review of a child death requires a thorough examination of all relevant data, including historical information concerning the deceased child and his/her family. Much of this information is protected from disclosure by law, especially medical and child abuse/neglect information. Therefore, CFRP panel meetings are always closed to the public and cannot be lawfully conducted unless the public is excluded. Each CFRP panel member should confine his or her public statements only to the fact that the panel met and that each panel member was charged to implement their own statutory mandates.

In no case, should any other information about the case or CFRP panel discussions be disclosed. All CFRP panel members who are asked to make a public statement should refer such inquiries to the panel spokesperson. Failure to observe this procedure may violate Division of Family Services' regulations, as well as state and federal confidentiality statutes that contain penalties.

Individual disciplines (coroner/medical examiners, sheriff departments, prosecuting attorneys, etc.) can still make public statements consistent with their individual agency's participation in the investigation, as long as they do not refer to the specific details discussed at the CFRP panel meeting.

No CFRP panel member is prohibited from making public statements about the general purpose, nature or effects of the CFRP process. Panel members should also be aware that the legislation which established the CFRP panels provides official immunity to all panel participants.



---

# MISSOURI STATE TECHNICAL ASSISTANCE TEAM, 2000

Harry D. Williams, Director, Division of Legal Services

Gus H. Kolilis  
Deputy Director, Division of Legal Services/Chief, State Technical Assistance Team

Tommy Capps, Investigator III

Stan Crocfer, Investigations Administrator

Maurine Hill, Administrative Assistant/Investigator II

Jerry Holder, Metro Case Coordinator (Kansas City)

Rodney Jones, Investigations Administrator

Suzanne McCune, Prevention Coordinator/Investigator III

Debbie McDermott, Metro Case Coordinator (St. Louis City and County)

Marion McMillan, Investigator III

Theresa Murrell, Clerk IV

Holly Otto, Investigator I

Linda Rapps, Data Coordinator/Investigator II

John Steinmeyer, Investigator III

Michael Stern, Investigator III

Dan Stewart, Investigator III

Susan Stoltz, Training Coordinator/Investigator II

Vern Taylor, Investigator III

Larry Wyrick, Investigator III

# MISSOURI STATE CHILD FATALITY REVIEW PANEL

According to RSMo 210.195, “The director of the department of social services shall appoint a state child fatality review panel which shall meet bianually to provide oversight and make recommendations to the department of social services, state technical assistance team.” In this oversight role, the panel is encouraged to identify systemic problems and bring concerns to the attention of the State Technical Assistance Team. The composition of the State Child Fatality Review Panel mirrors that of the county panels: each multidisciplinary profession is represented by a recognized leader in the respective discipline.

Ron Bilyk  
Training Coordinator  
Sheriff’s Training Academy

Mary J. Browning  
General Counsel  
Department of Social Services

Dr. Mary Case  
Medical Examiner  
St. Louis County

Jerry Conner  
Juvenile Officer  
Wright County

Denise Cross  
Director  
Division of Family Services

Alinda Dennis  
Community Initiatives  
Heart of America United Way  
Kansas City

Dr. Denise Dowd  
Injury Prevention  
Children’s Mercy Hospital  
Kansas City

Kathy Fincham  
Assistant US Attorney  
Kansas City

Mike Fusselman  
Prosecuting Attorney  
Randolph County

Bob Geigel  
EMS Supervisor  
St. Louis City Fire Department

Sgt. Maria Gomez  
Juvenile Affairs  
St. Louis County Police  
Department

Bruce Grotewiel  
Director  
Cole County EMS

Dr. James Jungels  
Medical Examiner  
Camden County

Bill Lawson  
Juvenile Officer  
Scott County

John Lenk  
Coroner  
Lincoln County

Sheldon Lineback  
Executive Director  
MO Police Chiefs Association

Kathleen Loyd  
Chief Juvenile Officer  
Dent County

Kate Mahoney  
Assistant Prosecuting Attorney  
Jackson County

Wayne Munkel, MSW  
Social Services  
Cardinal Glennon Hospital  
St. Louis

Patricia Schnitzer, Ph.D.  
Research Assistant Professor  
University of Missouri-  
Columbia

Lt. Col. William Siebert  
Technical Services Bureau  
State Highway Patrol

John Villanueva  
Executive Director  
Cabot Westside Clinic  
Kansas City

Elizabeth Ziegler  
Executive Director  
Office of Prosecution Services

Mark Van Tienen  
Bureau Chief of Health  
Services Statistics  
Department of Health  
and Senior Services

# SECTION ONE:

## Missouri Incident Fatalities

“A simple child,  
That lightly draws its breath,  
And feels its life in every limb,  
What should it know of death?”

- William Woodsworth

In reviewing this report, the reader should be aware of some important definitions and details about how child deaths are reported and certified in Missouri, summarized here: (Please refer to Appendix 6, Definitions of Important Terms and Variables, for additional information.)

- **“Missouri Child Fatalities”** refers to all children age 17 and under, who died in Missouri, without regard to the state of residence or the state in which the illness or injury occurred. (For example, a child who is a resident of Kentucky, injured in a motor vehicle crash in Illinois and brought to a Missouri hospital, where he or she subsequently dies, would be counted as a “Missouri Child Fatality.” This death would be reported to the Child Fatality Review Program on a Data Form 1, Section A, as an out-of-state event.)
- **“Missouri Incident Fatality”** refers to a *fatal injury, event or illness*, which occurs *within the state of Missouri*. (This is not necessarily the county or state in which the child resided.) If the death meets the criteria for panel review, it is reviewed in the county in which the *fatal injury, event or illness occurred*.
- Every Missouri incident child fatality is required to be reviewed by the coroner or medical examiner and the chairperson for the county Child Fatality Review Panel. The findings of that review are reported on the Data Form 1.
- Any child death that is *unclear, unexplained, or of a suspicious circumstance, and all sudden, unexplained deaths of infants one week to one year of age* are required to be reviewed by a county-based Child Fatality Review Panel. Panel findings are reported on the Data Form 2. Panel members receive annual training on the investigation of child deaths.
- **Multiple-Cause Deaths:** *Cause of death* is a disease, abnormality, injury or poisoning that contributed directly or indirectly to death. However, a death often results from the combined effect of two or more conditions. Because the Child Fatality Review Program is focused on the prevention of child fatalities, the precipitating events are of particular concern. Therefore, deaths are categorized according to the *circumstances of the death*, which may not be the immediate cause of death listed on the death certificate. (An example would be a child passenger in a car that runs off the road and lands in ditch full of water; the “immediate cause of death” is listed on the death certificate as “drowning,” but the precipitating event was a motor vehicle accident. This death would be reported in the Motor Vehicle Fatalities section, with a footnote indicating that the death certificate lists “drowning” as the immediate cause of death.)

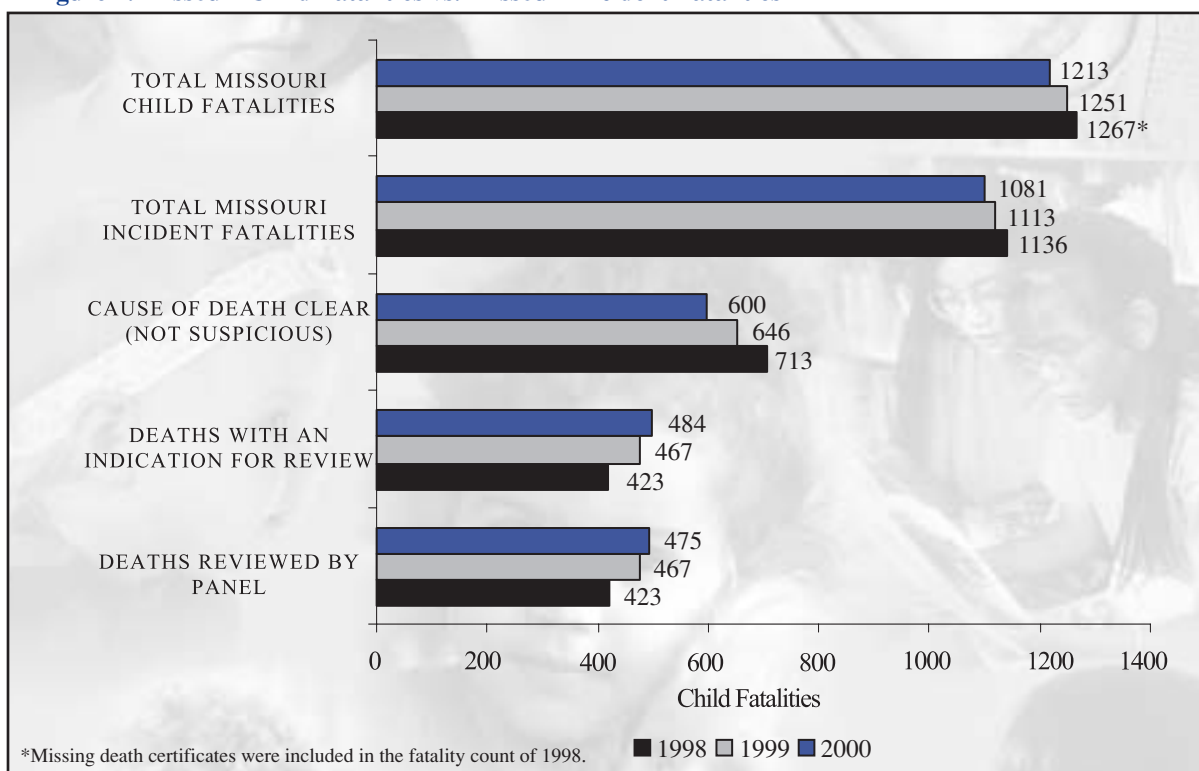
- The Child Fatality Review Program data management unit links data collected on the Data Forms 1 and 2 with Department of Health and Senior Services birth and death data. Every attempt is made to reconcile the two systems; however, in some cases, crucial data components are incomplete and are noted, as appropriate.
- All deaths included in this 2000 CFRP Annual Report occurred in calendar year 2000. Some of the cases reviewed may not have been brought before a county panel until the year 2001.
- In some cases, panels did not complete all of the information requested on the data form.
- In 2000, there were 6 Missouri Incident Fatalities reported on a Data Form 1 with indications for review. However, the local Child Fatality Review Panel did not complete the required review or did not report their findings on a Data Form 2. These fatalities are included in this 2000 CFRP Annual Report because the data, though incomplete, is useful and accurate within the limitations of the Data Form 1 information.
- In 2000, 25 Missouri Incident Fatalities were not reported on either a Data Form 1 or Data Form 2, but were reported to CFRP by death certificates from the Department of Health and Senior Services and other data sources. 12 (48%) of the 25 had at least one indication for review and are so noted. These fatalities are not included in the data for this Annual Report.

COUNTY	DEATH CERTIFICATE CAUSE OF DEATH	MET CRITERIA FOR REVIEW
Adair	Cyanotic heart disease; Eisenmenger's Syndrome; Down's Syndrome	No
Atchison	Prematurity 20.5 weeks	No
Boone	Extreme prematurity – previable	No
Camden	Probable cardiovascular accident; congestive heart failure	No
Dent	Bacterial Meningitis	Yes
Jasper	Blunt trauma to the head and chest; MVA	Yes
Miller	Internal injuries (automobile/pickup accident)	No
Miller	Accidental self-inflicted gunshot wound (hunting accident)	Yes
Miller	Subdural hematoma from blunt impact on head; petechiae with bruising on neck	Yes
Mississippi	Methylmalonic Aciduria; Inborn error of metabolism (Congenital)	No
New Madrid	Unable to definitively establish following investigation, autopsy and laboratory evaluation	Yes
New Madrid	Smoke inhalation; house fire	Yes
New Madrid	Smoke inhalation; house fire	Yes
New Madrid	Smoke inhalation; house fire	Yes
New Madrid	Smoke inhalation; house fire	Yes
New Madrid	SIDS	Yes
Nodaway	Sepsis; Pneumonia (organic brain syndrome)	No
Polk	Sepsis; Neutropenia; Lymphoma; Lung transplant (renal failure/respiratory insufficiency)	No
Pulaski	Ventricular arrhythmia; Aortic stenosis (subvalvar & valvar); Pulmonary stenosis s/p transannular patch	No
Pulaski	Hepatic failure; High dose chemotherapy; Recurrent primitive neuroectodermal intra-cranial tumor	No
Randolph	Prematurity	No
Randolph	Undetermined	Yes
Randolph	Medical complications of fetal alcohol syndrome	Yes
St. Louis County	Prematurity	No
Stone	Lacerated brain stem; Deceleration injury (2 car accident)	No

## Summary of Findings, Missouri Incident Fatalities, 2000

In 2000, **1,213** children age 17 and under died in Missouri. Of those deaths, **1,081** were determined to be “Missouri incident fatalities” and, therefore, subject to review by the coroner or medical examiner. Of the 1,081 deaths, **484** had an indication for review by a county Child Fatality Review Panel and of those **475** were reviewed and a Data Form 2 completed.

**Figure 1. Missouri Child Fatalities vs. Missouri Incident Fatalities**



**Figure 2. Missouri Incident Fatalities by Age**

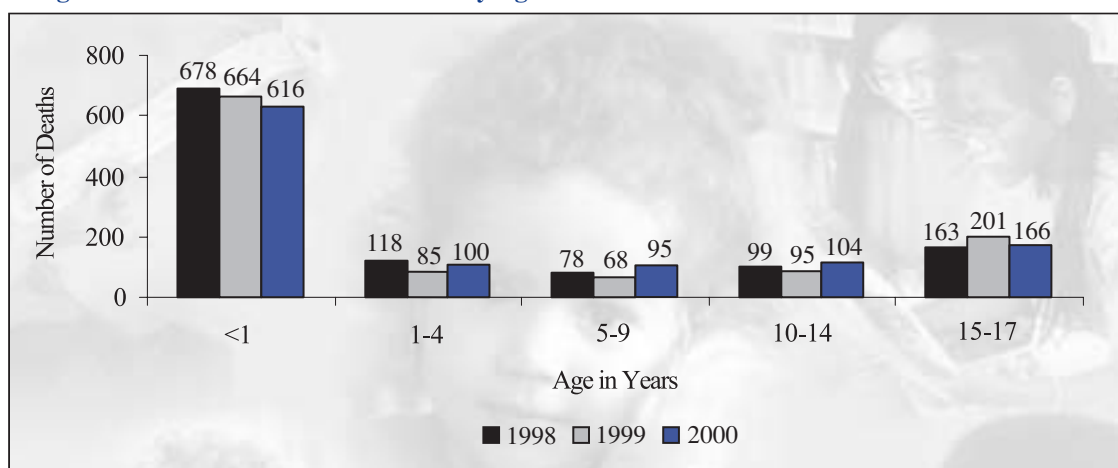


Figure 3. Missouri Incident Fatalities by Sex and Race

Sex	1998	1999	2000	Race	1998	1999	2000
Female	479	440	463	White	781	770	787
Male	657	673	618	Black	346	328	284
				Other	9	15	10
	1,136	1,113	1,081		1,136	1,113	1,081

Figure 4. Missouri Incident Fatalities by Manner

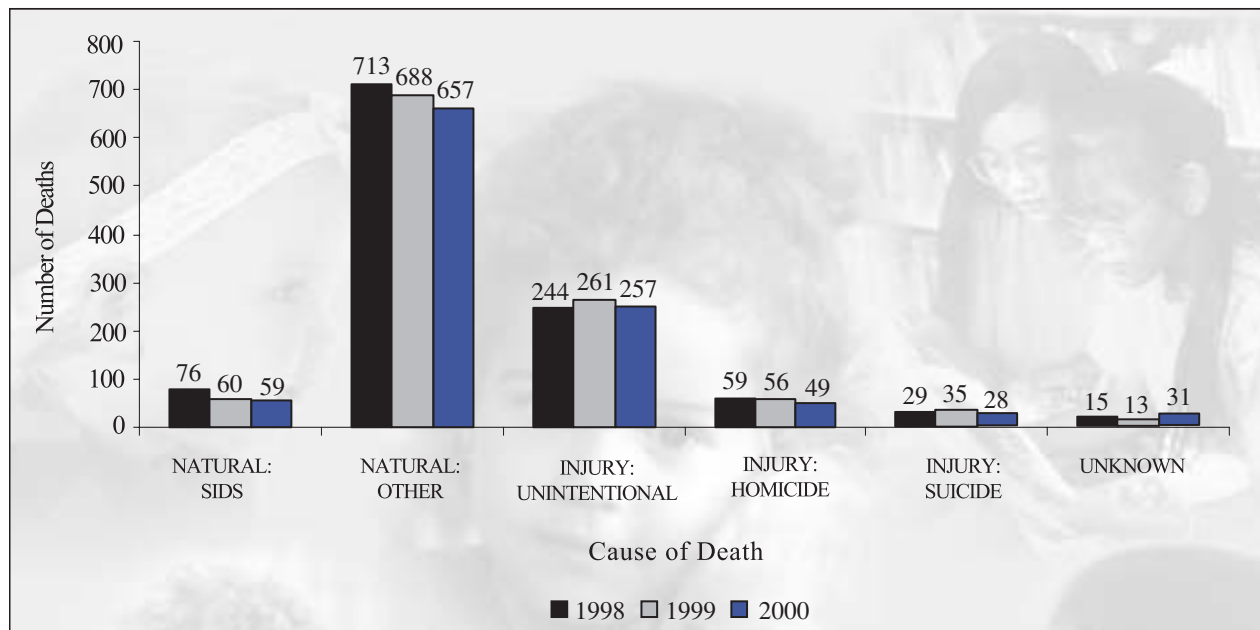
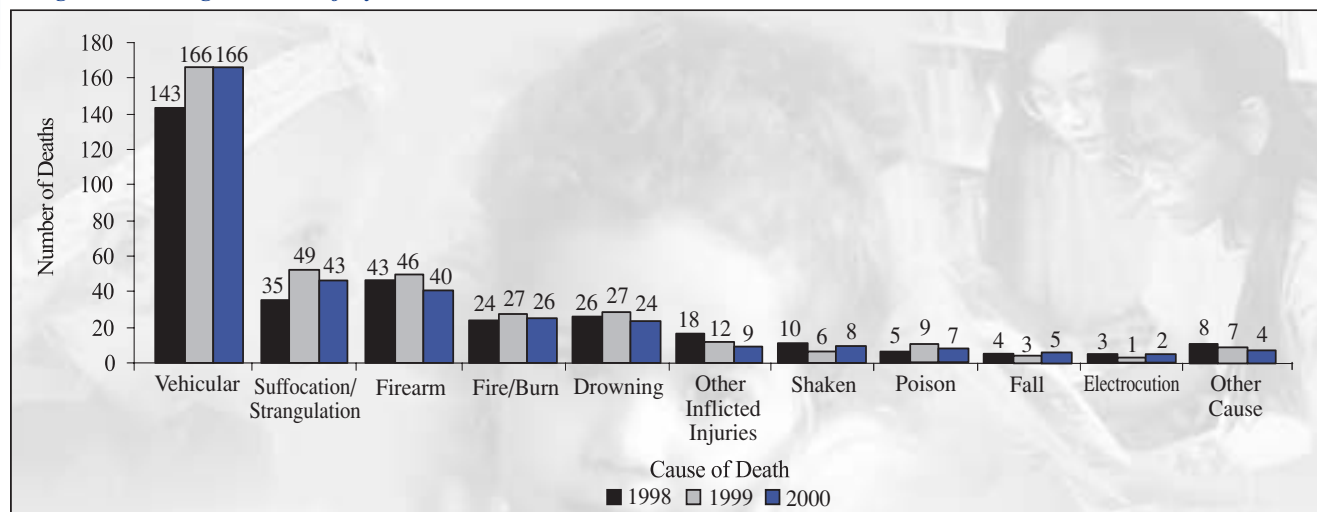


Figure 5. Leading Cause of Injury Deaths





## A Summary of Findings: Prevention

A *preventable death* is defined as a death in which awareness/education by an individual or the community may have changed the circumstances that lead to the death. Panels were asked to report their conclusions and activities regarding preventability for each death reviewed on the Data Form 2. Responses from completed data forms follow:

To what degree was this death believed to be preventable?	
Not at all	74
Possibly	104
Definitely	125
Unknown	181

Primary risk factors in the child's death			
Medical	82	Environmental	59
Social	64	Product safety	26
Economic	26	Drugs or alcohol	38
Behavioral	130	Other	43

### Prevention responses:

Panels were also asked to report their conclusions and activities regarding prevention responses for each death. Of the panels who completed this section of the data form, these were the responses:

Prevention activities proposed since death			
Legislation, law or ordinance	9	Consumer product safety	1
Community safety project	21	News services	31
Public forums	9	Changes in agency practice	8
Educational activities in school	27	Other programs/activities	25
Educational activities in the media	34	None	187
Target populations			
Children	39	Parents/caregivers	74
General public	70	Child protection professionals	23
Others	6		

### Service responses:

In order to protect surviving children and strengthen the family, Child Fatality Review Panels are asked to consider what tertiary services would be helpful and ensure that the appropriate referrals are made through member agencies or related organizations. Following is a summary of CFRP panel responses:

Services provided			
Bereavement counseling	113	Social services	110
Economic support	15	Health care	28
Funeral arrangements	67	Legal services	16
Emergency shelter	9	Other	26
Mental health services	16	No services	110

## SECTION TWO: Illness/Natural Cause Deaths

### All Illness/Natural Cause Deaths

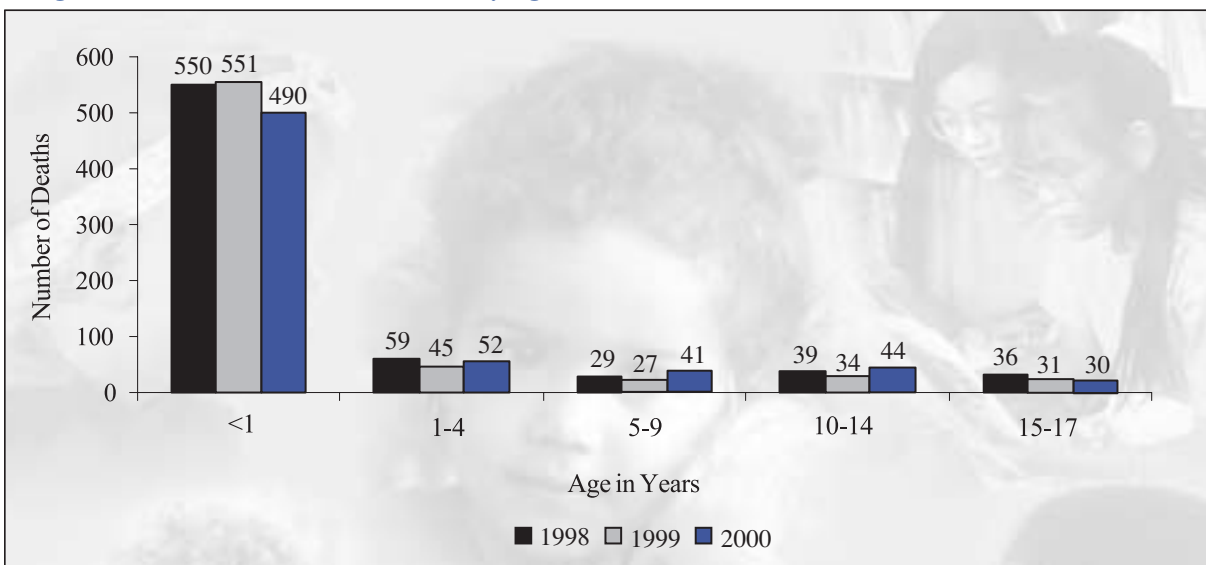
“The infant mortality rate has declined steadily during the last decade, due, in part to improved medical technology and public health outreach...Infants are more likely to die before their first birthday if they live in unsafe homes and neighborhoods or have inadequate nutrition, health care or supervision.”

*-Kids Count Missouri, Citizens for Missouri's Children and Children's Trust Fund*

Illness/natural causes were responsible for the deaths of 657 Missouri children in 2000, representing 61% of all Missouri incident fatalities.

Illness/natural cause deaths include prematurity, congenital anomalies, infection and other conditions. Sudden Infant Death Syndrome (SIDS), a natural death, is discussed in the section that follows. Most child deaths are related to illness or other natural cause. The vast majority of natural cause deaths occur before the first year of life and are often related to prematurity or birth defects.

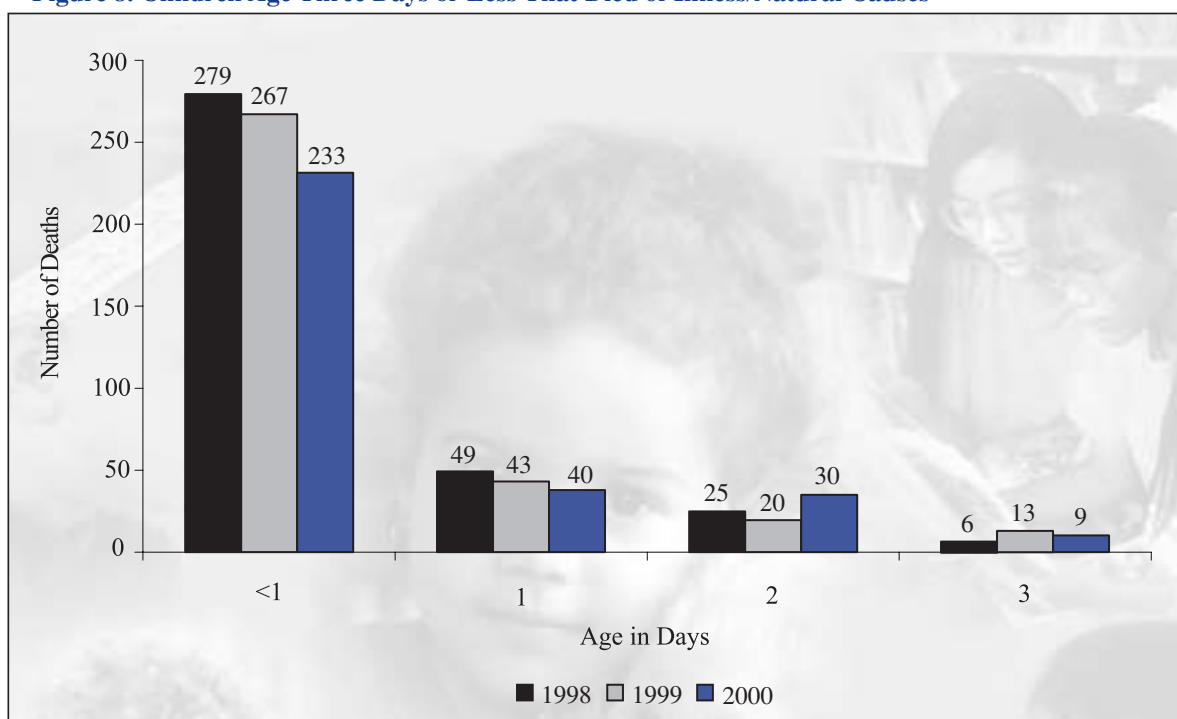
Figure 6. Illness/Natural Cause Deaths by Age



**Figure 7. Illness/Natural Cause Deaths by Sex and Race**

<b>Sex</b>	1998	1999	2000	<b>Race</b>	1998	1999	2000
Female	314	296	307	White	474	461	462
Male	399	392	350	Black	232	217	188
				Other	7	10	7
	713	688	657		713	688	657

Infants less than one year of age comprised the majority (75%) of illness/natural cause deaths in 2000 with **490**. Of those, **312** (63.7%), occurred within the first three days of life; **233** (47.6%) of those occurred within 24 hours of birth.

**Figure 8. Children Age Three Days or Less That Died of Illness/Natural Causes****Figure 9. Children Less Than One Year That Died of Illness/Natural Causes by Sex and Race**

<b>Sex</b>	1998	1999	2000	<b>Race</b>	1998	1999	2000
Female	237	233	226	White	355	361	331
Male	313	318	264	Black	191	182	152
				Other	4	8	7
	550	551	490		550	551	490

## Natural Cause Deaths in Infants Less Than One Year as Reported on CFRP Data Forms

Age at death		Gestational age at birth	
0 - 24 hours	258	<25 weeks	194
24 - 48 hours	28	25 - 30 weeks	64
48 hours - 6 weeks	122	30 - 37 weeks	68
6 weeks - 6 months	47	>37 weeks	65
6 months - 1 year	20	Unknown	80

Birth weight in grams (approximate lbs/oz)		Multiple births	
<750 (<1 lb 10 oz)	193	Yes	83
750 - 1,499 (1 lb 10 oz - 3 lbs 5 oz)	47	No	374
1,500 - 2,499 (3 lbs 5 oz - 5 lbs 5 oz)	52		
>2,500 (>5 lbs 5 oz)	66		
Unknown	106		

Medical complications during pregnancy		Smoking during pregnancy		Drug use during pregnancy		Alcohol use during pregnancy	
Yes	24	Yes	15	Yes	11	Yes	6
No	13	No	18	No	20	No	19
Unknown	28	Unknown	33	Unknown	35	Unknown	41

### Fetal and Infant Mortality Review (FIMR) and the Child Fatality Review Program

Today, the death of a child, especially the youngest, most vulnerable infant, is viewed as a sentinel event that is a measure of a community's overall social and economic well being, as well as its health. Fetal mortality is defined as the death of a fetus in utero at 20 weeks or more gestation. Infant mortality is defined as the death of an infant before one year of age. (The Missouri Child Fatality Review Program examines the deaths of *all children born live* through age 17.)

Over the past decade, two methods for examining these deaths at a local level have emerged: fetal and infant mortality review (FIMR) and child fatality review (CFRP). While there are a number of distinct and important differences in the two systems, there are also similarities, including basic human concern and advocacy. There are opportunities for local collaboration between the two systems that will benefit children and their families. ("Fetal and Infant Mortality Review and Child Fatality Review: Opportunities for Local Collaboration," *NFMIR Bulletin*, January 2000)

Prematurity, congenital anomalies and other natural causes of death are the focus of several initiatives of the Infant Mortality Working Group, lead by the Missouri Department of Health, whose mission is the "understanding of potentially modifiable causes of infant mortality." The State Technical Assistance Team and the Infant Mortality Working Group have collaborated to identify areas of overlapping interest with the goal of maximizing the benefits of CFRP and FIMR.

# Sudden Infant Death Syndrome (SIDS)

**Sudden Infant Death Syndrome (SIDS) was the cause of death of 59 Missouri infants in 2000, representing 12% of all natural cause deaths of infants less than one year of age.**

## Representative Cases:

- **Infants should be placed on their backs to sleep.**

A four-month old male infant was put to sleep on his stomach on thick bedding. He was found unresponsive the next morning.

A caregiver placed a four-month old infant on his stomach in a playpen padded with a blanket. She found him unresponsive laying face down a short time later.

- **The safest place to put infants to sleep is in a standard crib with a firm mattress without soft bedding.**

A seven-week old male was sleeping in a full-sized adult bed. He was placed on his back between the parents. He was found unresponsive by his mother.

A three-month old female was put to bed by her babysitter on a blanket on the couch. She was found unresponsive a short time later.

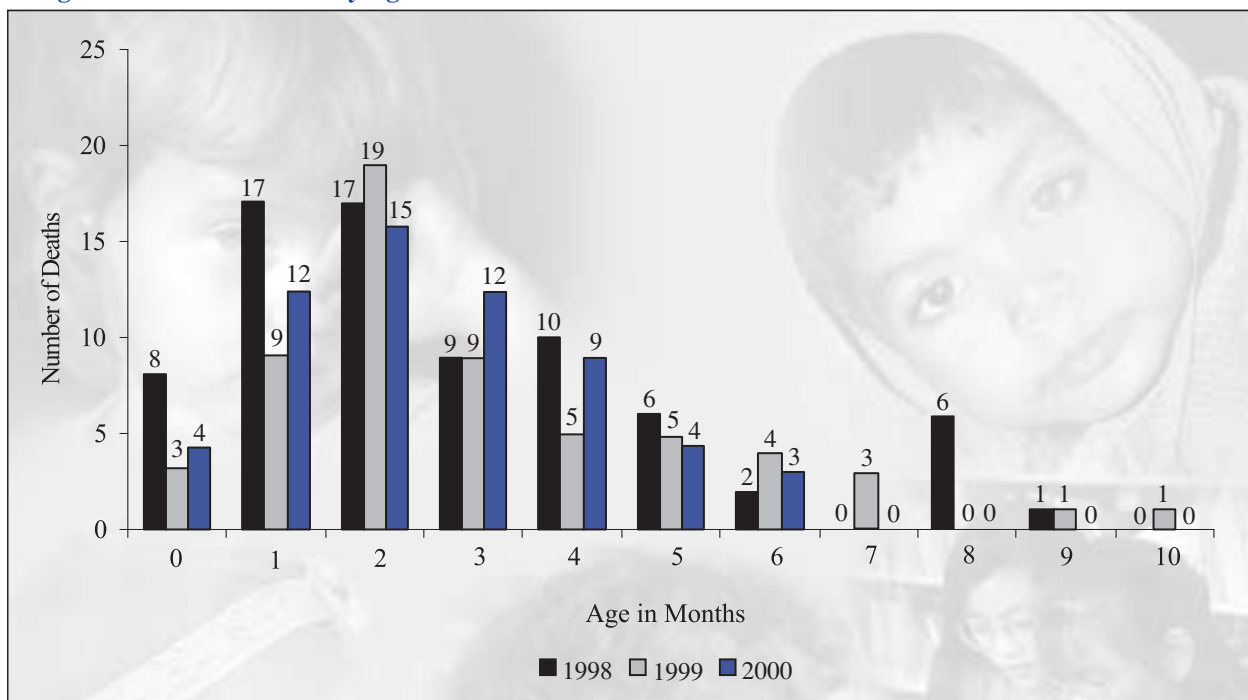
Sudden Infant Death Syndrome (SIDS) is the sudden, unexpected death of an apparently healthy infant under one year of age, which remains unexplained after the performance of a complete post-mortem investigation, including autopsy, an examination of the scene of death and review of the case history. (Missouri law requires an autopsy by a child death pathologist in any case of a sudden, unexpected death in an infant less than one year of age). SIDS is a diagnosis of *exclusion* and, by standard definition, a *natural* manner of death.

SIDS is not caused by spitting up, choking or minor illnesses, such as a cold. SIDS is not caused by immunizations; it is not contagious; SIDS is not child abuse. SIDS is not the cause of every sudden or unexpected infant death. In fact, of the **131** sudden, unexplained deaths of infants under the age of one year reported to the Child Fatality Review Program in 2000, **59** were diagnosed as SIDS following autopsy, investigation and panel review. The cause of death for the remaining **72** infants included **26** illness/natural cause, **5** homicides, **19** unintentional suffocations and **22** undetermined. (In some cases, the diagnosis “undetermined” is a response to changing trends in the diagnosis of sudden infant deaths and is not indicative of a suspicious death.)

SIDS is an extraordinarily complex problem. The cause or causes of SIDS is unknown at this time. Ninety percent of SIDS deaths occur in the first six months of life, with a peak at 2-4 months. SIDS is characterized by sudden death during a sleep period. Knowledge acquired in recent years supports the general hypothesis that infants who die from SIDS have abnormalities at birth that make them vulnerable to potential life-threatening challenges in infancy. This hypothesis is described by the “Triple Risk Model,” which involves a vulnerable infant (one with a subtle defect that cannot be detected at this time) at a critical developmental period (less than six months of age), exposed to outside stressors to which he/she does not respond.

Outside stressors include environmental factors such as overheating, tobacco smoke and prone sleeping. Early in the 1990’s prone sleep position was identified as a significant risk factor for SIDS. In the last decade great progress has been made in reducing the risks to infants through education of parents and caretakers about the importance of back sleeping for young infants. The efforts of the national “Back to Sleep” campaign led to a dramatic reduction of SIDS rate in the United States. In Missouri the SIDS rate, which peaked in 1991 at 2.0 per 1,000 live births (159) dropped to 0.8 per 1,000 live births in 1999 (60) and 2000 (59).

Figure 10. SIDS Fatalities by Age



Note: In 1999, one child is not included in this chart. Although the cause of death appears to be SIDS, the child was 13 months old.

Figure 11. SIDS Fatalities by Sex and Race

Sex	1998	1999	2000	Race	1998	1999	2000
Female	29	24	25	White	49	34	41
Male	47	36	34	Black	27	25	18
				Other	0	1	0
	76	60	59		76	60	59



Figure 12. SIDS Rate 1994-2000

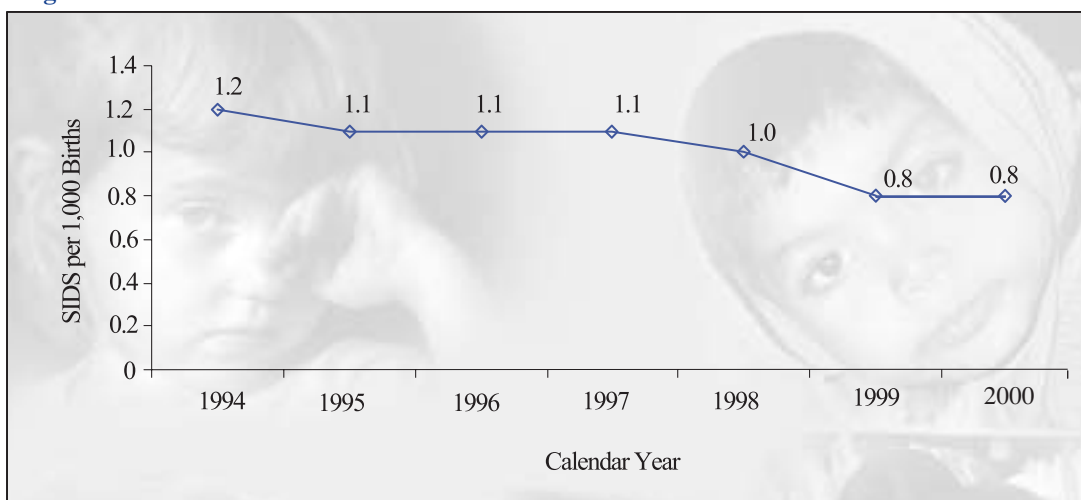
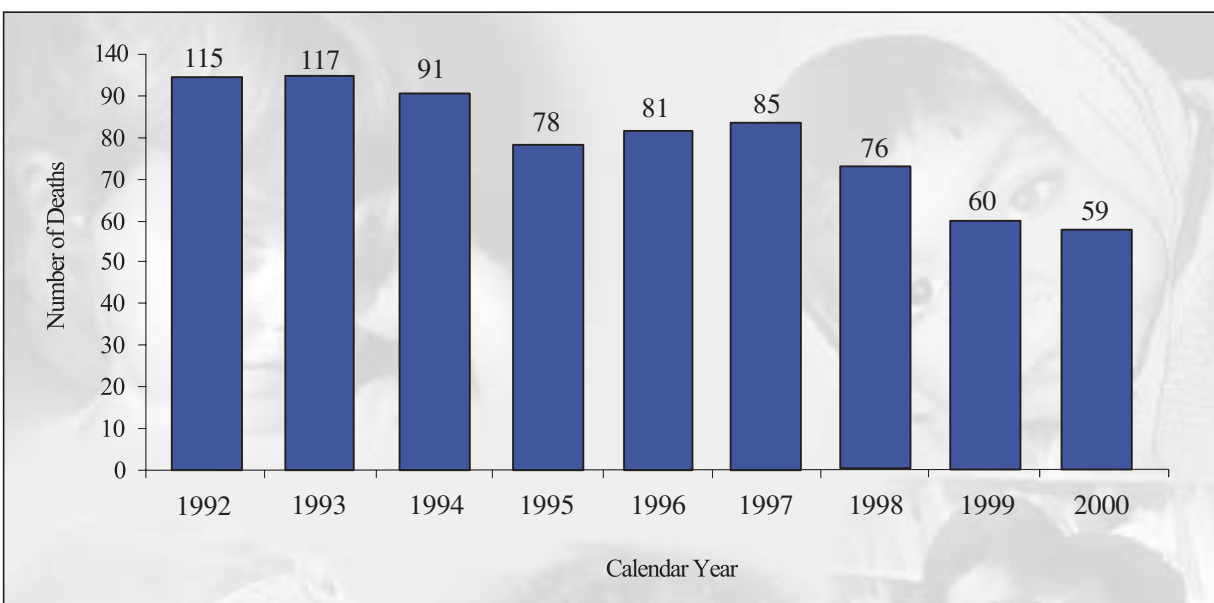


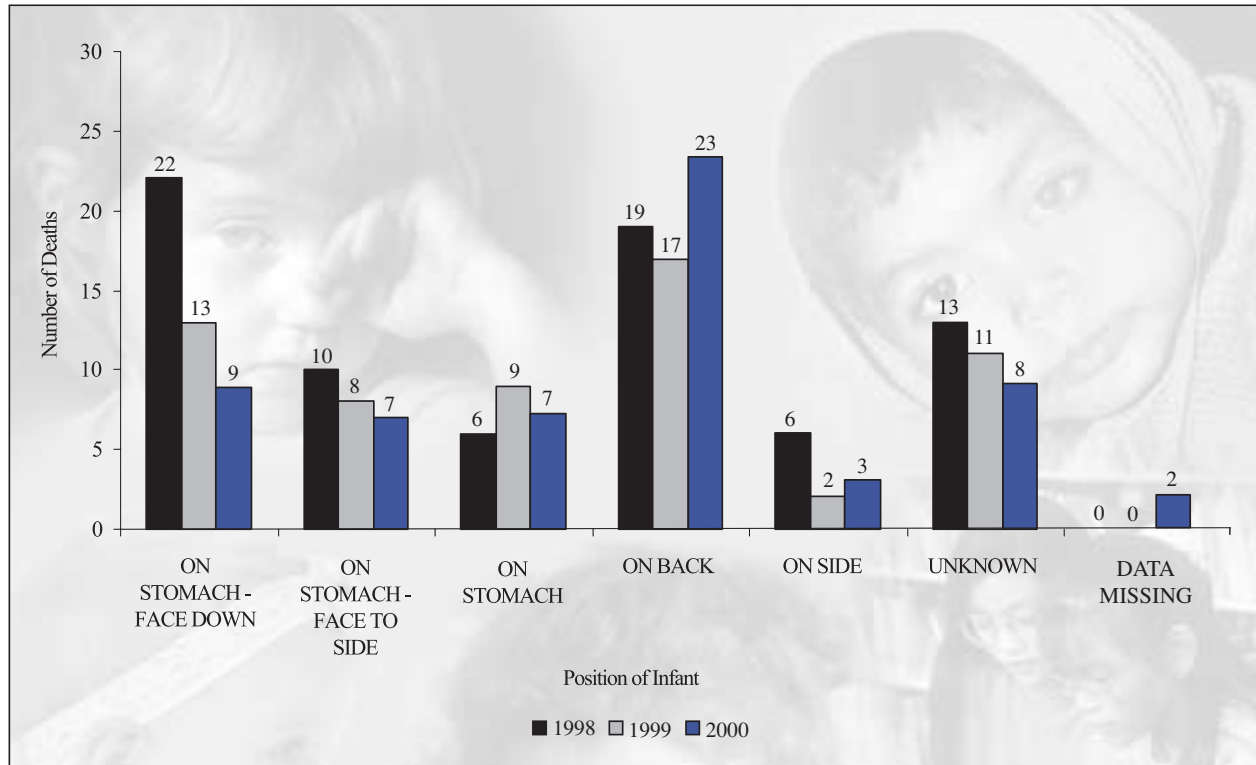
Figure 13. Missouri SIDS Deaths 1992-2000



In recent years, researchers have also concluded that certain unsafe sleep arrangements (*a challenged sleep environment*) occurred in the large majority of cases of sudden infant death diagnosed as SIDS, unintentional suffocation and cause undetermined. A *challenged sleep environment* includes a sleep surface not designed for infants, sleeping with head or face covered, or sharing a sleep surface (co-sleeping). (See also, “Unintentional Suffocation”)

In Missouri, of the **59** SIDS deaths reviewed by county panels in 2000, **26** (44%), were known to be sleeping on their stomach or side. **44** (74.5%) of those infants were not sleeping in a standard crib on a firm mattress. **24** (41%) were sleeping in an adult bed. Only **five** (8.5%) sudden infant deaths diagnosed as SIDS were known to be sleeping alone on their backs in a standard crib with head and face uncovered.

Figure 14. Position of Infant at Discovery



Sudden infant deaths require careful investigation, autopsy by a qualified pathologist and review of the medical and social history. Nevertheless, changing trends in the diagnosis of sudden infant death and the resulting diagnostic overlap present challenges, but the conclusions for prevention are clear. “Regardless of the diagnosis, recommendations that infants sleep supine on firm sleep surfaces that lessen the risk of entrapment or head covering, have the potential to save many lives.” (“Unsafe sleep practices and an analysis of bedsharing among infants dying suddenly and unexpectedly,” *Pediatrics*, Vol. 106 No. 3, September 2000)

**“Infant mortality is the most sensitive index we possess in social welfare.”**

***-Julia Lathrop  
Children’s Bureau, 1913***

## A SAFE SLEEPING ENVIRONMENT FOR YOUR BABY

The American Academy of Pediatrics, the Consumer Product Safety Commission and the National Institute of Child Health and Human Development have revised their recommendations on safe bedding practices when putting infants down to sleep. Here are the revised recommendations to follow for infants under 12 months:



### Safe Bedding Practices For Infants

- Place baby on his/her back on a firm tight-fitting mattress in a crib that meets current safety standards.
- Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
- Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
- If using a blanket, put baby with feet at the foot of the crib. Tuck a thin blanket around the crib mattress, reaching only so far as the baby's chest.
- Make sure your baby's head remains uncovered during sleep.
- Do not place baby on a waterbed, sofa, soft mattress, pillow or other soft surface to sleep.

Placing babies to sleep on their backs instead of their stomachs has been associated with a dramatic decrease in deaths from Sudden Infant Death Syndrome (SIDS). Babies have been found dead on their stomachs with their faces, noses and mouths covered by soft bedding, such as pillows, quilts, comforters and sheepskins. However, some babies have been found dead with their heads covered by soft bedding even while sleeping on their backs.

*The following risk reduction recommendations are from SIDS Resources, Inc., the SIDS Alliance and the American Academy of Pediatrics.*

### **Risk Reduction Recommendations:**

#### *For parents:*

- *Sleep position:* Infants should be placed on their backs to sleep throughout the first year of life.
- *Bedding:* Avoid soft bedding. Place baby on a firm tight-fitting mattress in a crib that meets current safety standards. Avoid placing the baby on soft quilts or comforters, sofas, pillows, waterbeds or sheepskins. Stuffed animals should not be placed in the crib with the baby. Avoid using bumper pads.
- *Temperature:* To avoid overheating, do not overdress the baby or over-bundle the baby.
- *Smoking:* Avoid smoking during pregnancy. Create a smoke-free environment around the baby after birth.
- *Breastfeeding:* Mothers should be encouraged to breastfeed. Some researchers have found that breastfeeding is a protective factor for SIDS.
- *Prenatal care and well-baby care.*

#### *For community leaders and policy makers:*

- *Support Safe-Sleep campaigns.*

#### *For professionals:*

- Newborn nursery personnel, physicians, nurses and public health officials should instruct all new parents and child care personnel in safe sleeping practices and other strategies to reduce the risk of SIDS.

#### *For Child Fatality Review Panels:*

- All sudden, unexplained deaths of infants <1 year of age require autopsy by a child death pathologist and review by a county CFRP panel. The data pertaining to infant deaths is critical in identifying risk factors for SIDS and providing targeted prevention messages for parents.

## References and Resources:

“Unsafe Sleep Practices and an Analysis of Bed Sharing Among Infants Dying Suddenly and Unexpectedly: Results of a Four-Year, Population-Based, Death-Scene Investigation Study of Sudden Infant Death Syndrome and Related Deaths,” James S. Kemp, MD, Benjamin Unger, BS, Davida Wilkins, Rose M. Psara, RN, Terrance L. Ledbetter, AD, Michael A. Graham, MD, Mary Case, MD, and Bradley Thach, MD, Pediatrics, Vol. 106, No. 3, September 2000.

### Safe Bedding Practices for Infants:

Consumer Product Safety Commission  
American Academy of Pediatrics

[www.cpsc.gov](http://www.cpsc.gov)

[www.aap.org](http://www.aap.org)

SIDS Resources, Inc., 143 Grand, St. Louis, MO 63122

800-421-3511

Counseling and support, research, training and education throughout Missouri.

Children’s Trust Fund

[www.ctf4kids.org](http://www.ctf4kids.org)

Safe Crib-Safe Sleep Campaign

573-751-5147



## SECTION THREE:

# Unintentional Injury Deaths

**“Injury is a problem that can be diminished considerably if adequate attention and support are directed to it. Exciting opportunities to understand and prevent injuries and to reduce their effects are at hand. The alternative is the continued loss of health and life to predictable, preventable and modifiable injuries.”**

*-Dr. William Foege, Former Director of the Centers for Disease Control*

**Unintentional injuries were responsible for the deaths of 257 Missouri children in 2000, representing 24% of all Missouri incident fatalities.**

Unintentional injuries are the leading killer of children ages 1-17. Each year in the United States, approximately 7,200 children ages 14 and under are killed, and 50,000 are permanently disabled. (*Children's Safety Network*) More children, ages 1-17, die from unintentional injuries than from all childhood diseases combined.

Unintentional injuries have traditionally been known as accidents and are recorded on death certificates as such. The term “accident” implies that a serious or fatal event was random or unavoidable, or the result of individual carelessness. In recent decades, the science of injury prevention has moved away from this fatalistic approach to one that focuses on the environment and products used by the public, as well as individual behavior. Injuries are now widely recognized as understandable, predictable and preventable.

Leading causes of unintentional injury deaths among Missouri children in 2000 were motor vehicle crashes, unintentional suffocation/strangulation, drowning and fire/burn.

Injury is the leading cause of child hospitalization. For every child who dies from a preventable injury, 40 others are hospitalized and 1120 are treated in emergency rooms. (*Children's Safety Network*) The difference between a fatal and nonfatal event is often only a few feet, a few inches, or a few seconds. When compared with large numbers of nonfatal serious injuries, fatalities are relatively rare. Yet, fatal injuries are sentinel events that indicate significant risks for all children and a deadly threat for some.



## Motor Vehicle Fatalities

There were 161 motor vehicle fatalities among Missouri children in 2000 which represents 63% of all unintentional injury deaths.

“We use the term ‘crash’ instead of ‘accident’ because we want people to realize that when cars run into each other, or run off the road and hit something or crash into something it is almost always caused by driver error - it is seldom an ‘accident’”

- Missouri State Highway Patrol

Motor vehicle crashes remain the leading cause of unintentional injury deaths among Missouri’s children, ages 1-17. Motor vehicle fatalities include drivers and passengers of motor vehicles, pedestrians who are struck by motor vehicles, bicyclists and occupants of any other form of transportation. Of the **161** motor vehicle deaths among Missouri children in 2000, **87** (54%) were reviewed by county panels. The graph below includes all motor vehicle-related child fatalities reported to the Child Fatality Review Program in 2000, by position at the time of injury.

Figure 15. Motor Vehicle Fatalities by Position at Time of Injury

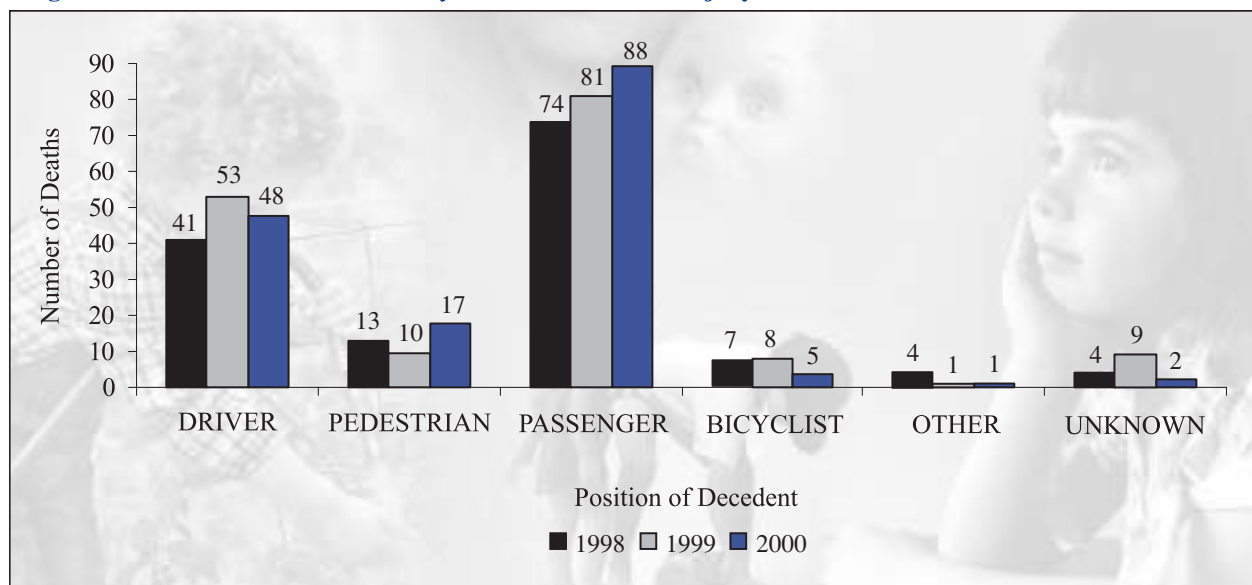


Figure 16. Motor Vehicle Fatalities by Sex and Race

Sex	1998	1999	2000	Race	1998	1999	2000
Female	53	53	63	White	130	149	143
Male	90	109	98	Black	12	11	16
				Other	1	2	2
	143	162	161		143	162	161

## Motor Vehicle Fatalities as Reported on CFRP Data Forms

Type of vehicle			
Car	90	Other farm vehicle	1
Truck/RV/Van	33	All-terrain vehicle	3
Motorcycle	4	Semi/Tractor trailer unit	0
Bicycle	6	Other	0
Riding mower	0	Unknown	0
Farm tractor	1	Non-applicable	18

Conditions of road	
Normal	116
Loose gravel	6
Wet	10
Ice or snow	12
Other	2
Unknown	11

Restraint used		Primary cause of accident	
Present, not used	58	Speeding	32
None in vehicle	5	Carelessness	32
Used correctly	31	Mechanical failure	4
Used incorrectly	1	Weather	12
Unknown	30	Driver error	41
Not applicable	28	Other	22
		Unknown	8

Helmet Used - Bicycle		Alcohol and/or other drug use	
Helmet worn	1	Decedent impaired	8
Helmet not worn	1	Driver of decedent's vehicle impaired	9
Not applicable	2	Driver of other vehicle impaired	2
Unknown	0	Not applicable	56

## Driver and Passenger Fatalities

### Representative Cases:

- **Children age 4 years and under should ride appropriately restrained in a child safety seat.**

A 15-month old girl was riding unrestrained on her mother's lap while her mother was driving the vehicle. The driver became distracted by the child, crossed the centerline and struck a stock trailer loaded with cattle. The child and driver died instantly.

**Representative Cases continued:**

- **The most significant risk factors among teen drivers are inexperience, low rates of seatbelt use and alcohol.**

A 17-year old male was riding with an 18-year old friend. Both were intoxicated. The vehicle left the road at 100+ miles per hour. The unrestrained victim was ejected and died at the scene.

**136** of the **161** motor vehicle deaths in Missouri in 2000 involved drivers and passengers. The National Center for Injury Prevention and Control lists two factors as most significant in contributing to motor vehicle related fatalities among children: (1) unrestrained children and (2) drunk drivers.

Unrestrained children refers to infants and toddlers who are not riding in properly installed car seats and older children whose seatbelts are not fastened. **Sixty-three** of the child passenger fatalities in Missouri in 2000, were known to be riding unrestrained. **Five** of those were children age 4 and under. Missouri law requires restraint for children under age 4 and allows for primary enforcement, meaning that a police officer can stop and cite the driver solely for violation of the restraint law. The National Safe Kids Campaign reports that 40% of children age 4 and under ride unrestrained, placing them at twice the risk of death and injury as those riding restrained. The most common reasons restrained children are killed are misuse of child safety seats and premature graduation to safety belts. It is estimated that approximately 80% of children who are placed in child safety seats are improperly restrained.

Alcohol interferes with driving because it impairs the driver's mental and physical abilities in two important areas: (1) actions that require divided attention, such as watching traffic and reading street signs, and (2) actions that require doing several things at once (e.g., steering into a turn, braking and shifting gears). Of the **87** motor vehicle fatalities reviewed in 2000, **19** involved a driver impaired by alcohol. **Ten** of those fatalities involved a child riding with a driver who was impaired; **7** fatalities involved a teen driver who was impaired by alcohol.

Teenagers are three to four times more likely to be involved in a crash than the driving population at large. In Missouri, teens age 15-18 account for 6.5% of 3.9 million licensed drivers. Of all 1999 Missouri crashes, more than 31% involved a young driver (15-20 years of age). The highest fatality rates are found among teenage drivers.

According to the National Center for Injury Prevention and Control, the most significant risk factors among teenage drivers are inexperience, low rates of seatbelt use and alcohol. Inexperienced drivers lack the perception, judgment and decision-making skills that take practice to acquire. Advanced driving skills, such as driving at night and during rush hour traffic, detecting threats and recovering from a skid, take a lot of practice to master. Teens are known for their impulsive risk-taking behavior and perceived invulnerability. They also have a high risk exposure, especially nighttime driving with several friends in the car.

Seatbelts are known to reduce the risk of a fatal motor vehicle injury by as much as 45%. There is a low rate of seatbelt use among teens. The 1999 Missouri Youth Risk Behavior Survey found that 24% of students reported that they never or rarely wore a seatbelt when riding in a car driven by someone else. **Seventy-nine** (49%) of motor vehicle fatalities among children in Missouri in 2000 were teenagers, age 15-17. **Forty-one** (52%) were known to be unrestrained at the time of the crash.

## Pedestrian Fatalities

### Representative Cases:

- **Young children require constant supervision.**

A two-year-old boy was outside playing, unsupervised, with other children in the neighborhood. The child stepped out into the street and was struck by a speeding car. He was thrown in the air and landed on the side of the car. The boy died at the hospital a short time later.

A four-year-old boy was left in the supervision of a family friend while his father temporarily left the residence. The child and his siblings went outside to play, unsupervised, in the front yard. The adult caretaker was in the kitchen looking out the window when a car traveling down the road struck the decedent.

Of the **161** motor vehicle fatalities among children in Missouri, **17** were pedestrians. **Six** of those were age 4 and under; **4** were between the ages of 5 and 9.

*The following is a summary of information provided by the National Safe Kids Campaign:*

Children are particularly vulnerable to pedestrian death, because they are exposed to traffic threats that exceed their cognitive, developmental, behavioral, physical and sensory abilities. This is exacerbated by the fact that parents overestimate their children's pedestrian skills. Children are impulsive and have difficulty judging speed, spatial relations and distance.

Toddlers (ages 1 and 2 years) sustain the highest number of pedestrian injuries, primarily due to their small size and limited traffic experience. More than half of all pedestrian injuries involving toddlers occur when a vehicle is backing up. Young children are at increased risk of pedestrian death and injury in driveways and other relatively protected areas.

Children, age 5 through 9, are at the greatest risk from pedestrian death and injury. Children, ages 14 and under, are more likely to suffer pedestrian injuries in residential areas with high traffic volume, a higher number of parked vehicles on the street, higher posted speed limits, few pedestrian-control devices and few alternative play areas.

Practical, skills-based pedestrian safety training efforts have demonstrated improvements in children's traffic behavior. Environmental modifications are effective at reducing pedestrian-motor vehicle-related incidents.

## Bicycle-related Fatalities

### Representative Cases:

- **Children should always wear helmets when riding bicycles.**

The 12-year old victim was riding her bicycle past the boundary set by her parents. She was struck by a car and suffered intracranial hemorrhages with bilateral pulmonary contusions. She was not wearing a helmet.

Motor vehicle fatalities among Missouri children also include **5** bicyclists who died in 2000, when they were either struck by a motor vehicle or fell. The majority suffered fatal head injuries. Only **one** was reported to be wearing a helmet.

The single most effective safety device available to reduce head injury and death from bicycle crashes is a helmet. In the event of a crash, wearing a bicycle helmet reduces the risk of serious head injury by as much as 85% and the risk for brain injury by as much as 88%. Unfortunately, national estimates on helmet usage suggest that only 25% of children, ages 5-14, wear a helmet when riding. Helmet usage is lowest among children ages 11 to 14. (Safe Kids) The primary strategies to increase bike helmet use include education, legislation and helmet-distribution programs. (*National Center for Injury Prevention and Control*)

### **Prevention Recommendations:**

#### For parents:

- Children, 12 years old and younger, should always ride appropriately restrained in the back seat of all passenger vehicles, particularly vehicles with airbags.
- Never allow children under age 12 to cross streets alone.
- Always model and teach proper pedestrian behavior.

#### For community leaders and policy makers:

- Community leaders should encourage enforcement of existing child restraint laws.
- Missouri lawmakers should strengthen child restraint laws by mandating the following:
  - Include children age 4 through 15 in the child restraint law, thereby making restraint use in the age group subject to primary enforcement.
  - Raise the penalty for violation of child restraint laws to at least \$100 and one driver's license point.
  - Remove the provision of the vehicle equipment regulations that states that if there are not enough safety belts for all passengers, they are not in violation for failure to use.

#### For professionals:

- Facilitate and implement programs that educate parents on appropriate restraint of children in motor vehicles, and provide child safety seats to those who do not have them, such as safety seat check-up events.
- Facilitate and implement programs that educate parents and children on helmet use, instructions on fitting helmets properly and events that provide helmets at little or no cost.

#### For Child Fatality Review Panels:

- Ensure that speed limits, and laws prohibiting driving while intoxicated, along with other traffic safety laws, are strictly enforced.

## References and Resources:

National Safe Kids Campaign . . . . .	www.safekids.org
National Center for Injury Prevention and Control . . . . .	www.cdc.gov/ncipc
Harborview Injury Prevention and Research Center . . . . .	http://depts.washington.edu
National Highway Transportation Safety Administration . . . . .	www.nhtsa.dot.gov
Missouri Division of Highway Safety . . . . .	www.dps.state.mo.us/dps/mshs/hs
Underage=Unprepared . . . . .	www.underageunprepared.com
Stop the Knock . . . . .	www.mshp.state.mo.us (contact the appropriate headquarters)
Think First . . . . .	www.thinkfirst.org
Kids 'N Cars . . . . .	www.kidsncars.org

## Unintentional Suffocation/Strangulation

**Unintentional Suffocation/Strangulation was the cause of 27 deaths of Missouri children in 2000, representing 11% of unintentional injury deaths.**

### Representative Cases:

- **The safest place for infants to sleep is in a standard crib, on their backs with no soft bedding.**

A one-month old girl was put to sleep with her mother on a waterbed covered with heavy blankets. She was discovered face down in the waterbed and unresponsive. The child died of positional asphyxiation.

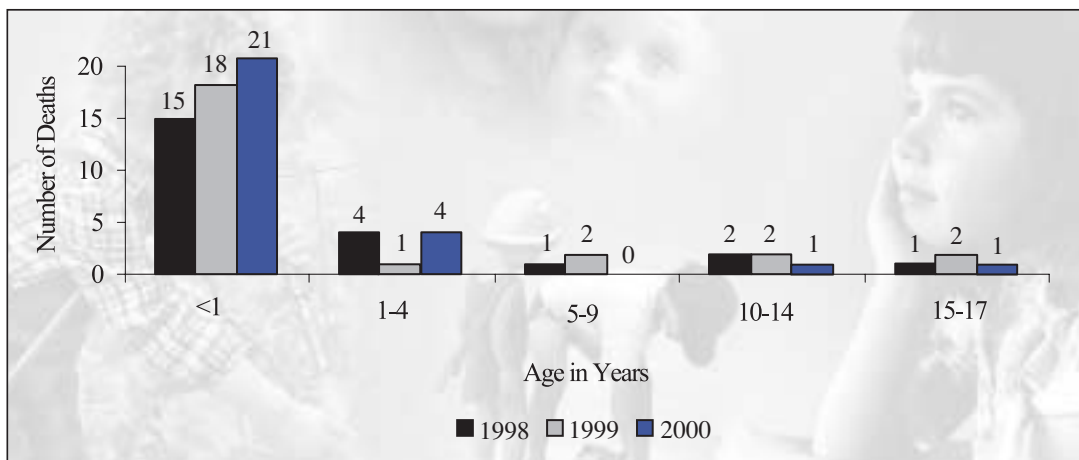
A one-month old male was sleeping on the couch with his mother. The mother woke up to find the victim wedged between her arm and the couch. This child died of accidental suffocation as a result of wedging.

A four-month old male was placed in bed with his father after waking up several times during the night crying. He was placed on his side. The father found the victim unresponsive on his stomach with his face buried in his blanket the next morning. This child died of positional asphyxiation.

The mother of a two-week old infant took the baby to bed with her. She awoke during the night to find the infant next to her unresponsive. The infant died of suffocation due to pinning or overlay by mother.

A two-month old male was placed in an adult bed between his parents to sleep. The mother awoke up to find herself lying on top of the infant. The child died of unintentional suffocation due to overlay by mother.

A two-month old was sleeping with her mother and three-year old sibling. The infant was apparently pinned between the mother and sibling, resulting in unintentional suffocation.

**Figure 17. Unintentional Strangulation/Suffocation Deaths by Age****Figure 18. Unintentional Strangulation/Suffocation Deaths by Sex and Race**

Sex	1998	1999	2000	Race	1998	1999	2000
Female	11	9	12	White	16	19	22
Male	12	16	15	Black	7	6	5
	23	25	27		23	25	27

Of the **27** Missouri children who died in 2000 as a result of unintentional suffocation/strangulation, **21** (78%) were infants under the age of one year.

Strangulation deaths may also be intentional, either inflicted by others (homicide) or self-inflicted (suicide). These are discussed in the appropriate sections under “Intentional Injury Deaths.”

Obstruction of the airway (suffocation, strangulation and choking) is a leading cause of injury death in infants under the age of one year in Missouri and in the United States. These injuries occur when children are unable to breathe normally because food or objects block their internal airways (choking); materials block or cover their external airways (suffocation); or items become wrapped around their neck or exert pressure on their neck and interfere with breathing (strangulation). Children, especially those under age 3, are particularly vulnerable to airway obstruction death and injury due to the small size of their upper airways, their relative inexperience with chewing, and their natural tendency to put objects in their mouths. Additionally, an infant’s inability to lift his or her head or extricate themselves from tight places puts them at greater risk. (*National Safe Kids Campaign*)

### Suffocation

Most infant deaths due to suffocation are directly related to unsafe sleep arrangements. Infants can suffocate when their faces become wedged against or buried in a mattress, pillow, comforter, bumper pad or other soft bedding (environments conducive to re-breathing of their own air) or overlays, when someone in the same bed rolls over on them (co-sleeping with adults or older children).



In the late 1990's, studies conducted in the United States and other countries drew similar conclusions about the significance of unsafe sleep practices associated with cases of sudden infant death. One such study was conducted by researchers in the St. Louis area. This four-year population-based, deathscene investigation study of sudden infant death syndrome and related deaths analyzed bed-sharing and other unsafe sleep practices among infants dying suddenly and unexpectedly (Pediatrics, Vol. 106, No. 3, September 2000). Using the Child Fatality Review Program and medical examiner records as primary data sources, researchers found that 84% of victims had a diagnosis of accidental suffocation, or were found prone and face down or to the side, or were found with head covered or while sharing a sleep surface. Only 8.4% of deaths involved infants found nonprone and alone, with head and face uncovered. The implications for prevention are clear. Educating parents and other caretakers on safe sleep arrangements for infants has the potential to save many lives.

### Choking

In 2000, one three-year old child in Missouri choked while eating a hot dog. One infant appeared to have choked on formula.

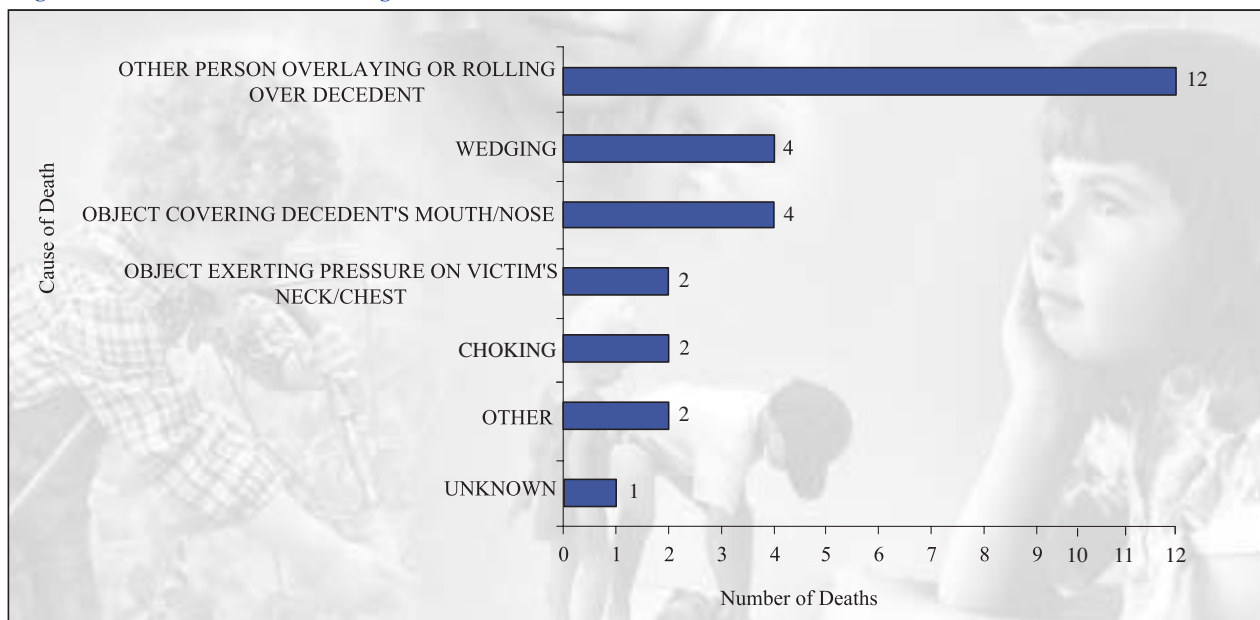
In the United States, most childhood choking injuries and deaths are associated with food items, particularly small, round foods, such as hot dogs and peanuts. Other small round objects like coins, small balls and balloons pose choking hazards for young children. Balloons are the most common cause of toy-related choking death and are as common among children ages 3 and older as among younger children.

### Strangulation

Children strangle in openings that permit the passage of their bodies, yet are too small for and entrap their heads. These include spaces in bunk beds, cribs, playground equipment, baby strollers and high chairs.

Unintentional hangings occur when items such as clothing drawstrings, ribbons or other decorations, window blind and drapery cords, and pacifier strings become wrapped around the neck of the child. Two Missouri children died in 2000 as a result of unintentional hanging.

Figure 19. Cause of Unintentional Strangulation/Suffocation Deaths



## Prevention Recommendations:

### For parents:

- Follow “Safe Bedding Practices for Infants” recommended by the American Academy of Pediatrics:
  - Place baby on his/her back on a firm, tight-fitting mattress in a crib that meets current safety standards.
  - Remove pillows, quilts, comforters, sheepskins, stuffed toys and other soft products from the crib.
  - Consider using a sleeper or other sleep clothing as an alternative to blankets, with no other covering.
  - If using a blanket, put baby at the foot of the crib. Tuck a thin blanket around the crib mattress, covering only as far as the baby’s chest.
  - Make sure your baby’s head remains uncovered during sleep.
  - Do not place baby on a waterbed, sofa, soft mattress, pillow, or other soft surface to sleep.
- Remove drawstrings from children’s clothing.
- Tie up or remove all cords for window coverings.

### For community leaders and policy makers:

- Support legislation that requires improved product design, or removal of hazardous products from the market.

### For professionals:

- Information about unintentional suffocation/strangulation hazards to young children, including unsafe sleep practices should be widely disseminated.
- Teach parents CPR and the Heimlich Maneuver for infants and young children.

### For Child Fatality Review Panels:

- Report any child death that appears to involve a product hazard to the Consumer Product Safety Commission. The CPSC can also be accessed for product safety research assistance; contact STAT for assistance.

## References and Resources:

Consumer Product Safety Commission . . . . .www.cpsc.gov  
 National Safe Kids Campaign . . . . .www.safekids.org  
 American Academy of Pediatrics . . . . .www.aap.org  
 Missouri Children’s Trust Fund, “Safe Crib-Safe Sleep” Campaign . .www.ctf4kids.org

## Fire/Burn Fatalities

**Fire/Burn injuries were the cause of 24 Missouri child deaths in 2000, representing 9% of unintentional injury deaths.**

### Representative Cases:

- **Lighters, matches and other sources of fire should be kept locked away from children.**

A 15-month old child died in a residential fire. The fire was started by older siblings playing with matches.

- **Properly installed and maintained smoke detectors are effective in preventing fatalities.**

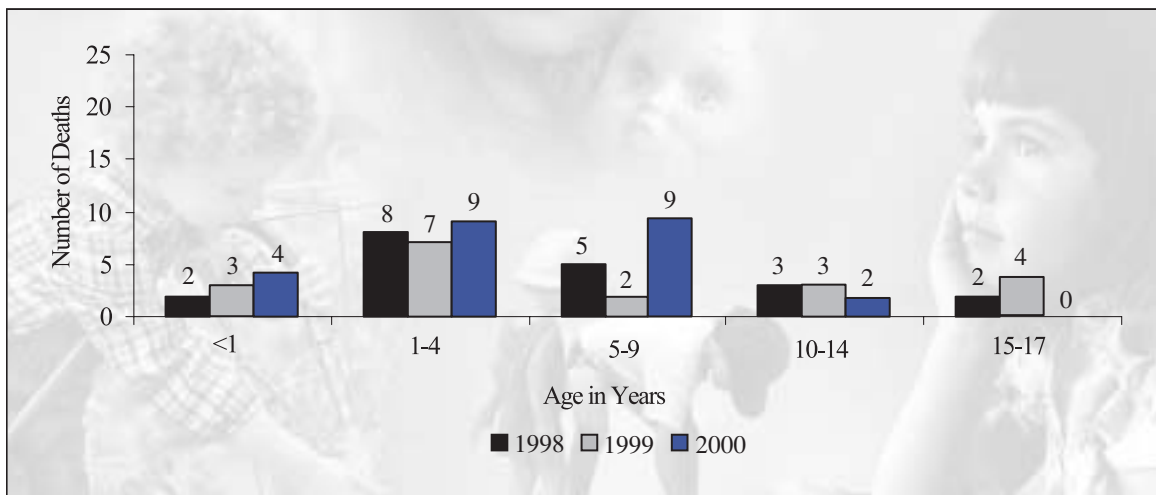
A two-year old female was asleep in the rear bedroom of her mother's apartment when a fire broke out in the living room. The smoke detectors in the apartment were not working. Rescuers were unable to reach the child before she died of smoke inhalation.

- **Every residence should have a working smoke detector.**

Two children, ages 2 and 3, died from a fire in their parents' home. They were found in a closet hiding from the firefighters. There were no smoke alarms in the home.

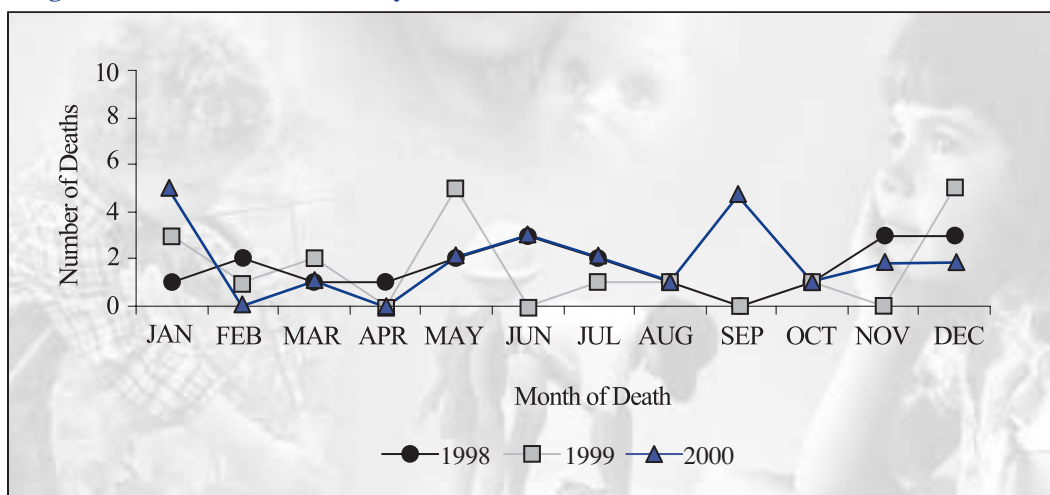
Each year in the United States more than 600 children ages 14 and under die, and nearly 47,000 are injured in fires. In Missouri **24** children died as a result of fire/burn injury in 2000; **13** of those children were under the age of five and **4** were infants under the age of one. Fire and burn injuries are the third leading cause of unintentional injury deaths among Missouri children.

Children, especially those age 5 and under, are at the greatest risk from home fire-related death and injury and are more than twice as likely to die in a fire than the rest of the population. Young children have a limited ability to react promptly and properly to a fire; they are unable to act, or act irrationally. They may attempt to hide or run from adults attempting to rescue them. More than half the children under the age of 5 who die in home fires, are asleep at the time of the fire. (*Safe Kids*)

**Figure 20. Fire/Burn Deaths by Age****Figure 21. Fire/Burn Deaths by Sex and Race**

Sex	1998	1999	2000	Race	1998	1999	2000
Female	9	6	12	White	12	10	16
Male	11	13	12	Black	8	9	8
	20	19	24		20	19	24

Residential fires and related fatalities occur more often during cold-weather months, when the use of heating systems is at a peak.

**Figure 22. Fire/Burn Fatalities by Month of Death**

- In the United States, a working smoke alarm is not present in two-thirds of the residential fires in which a child is injured or killed. Smoke detectors were reported to be present in only **11** of the fatal Missouri fires reviewed by county CFRP panels in 2000, and only **4** were known to be in working order. Approximately 90% of homes in the U.S. have a smoke alarm; however, these alarms are not always properly maintained.
- Children living in rural areas have a dramatically higher risk of dying in a residential fire. (*United States Fire Administration*)
- Nationally, over 30% of the fires that kill young children are started by children playing with matches or lighters. These fires tend to begin in the bedroom or living room, where children are often left alone to play. (*National Center for Injury Prevention and Control*)
- Children from low-income families are at greater risk for fire-related death and injury, due to factors such as lack of working smoke alarms, substandard housing, use of alternative heating sources and economic constraints on providing adequate adult supervision. (*Safe Kids*)

## Fire/Burn Fatalities as Reported on CFRP Data Forms

Smoke alarm present		Fire started by	
Yes	11	Decedent	1
No	12	Other	3
Unknown	1	No one	14
Not applicable	0	Unknown	5

Activity of person starting fire		Multiple fire injuries or deaths	
Playing	2	Yes	16
Smoking	2	No	7
Unknown	2	Unknown	0
Not applicable	14		

For structure fire, where was decedent found		Did decedent know of a fire escape plan	
Hiding	6	Yes	0
In bed	10	No	4
Stairway	2	Unknown	17
Closed exit	1	Not applicable	1
Other	2		

Source of fire		Smoke alarm in working order	
Matches	1	Yes	4
Cigarettes	1	No	8
Combustibles	1	Unknown	1
Spaceheater	1	Not applicable	10
Faulty wiring	9		
Other	4		
Unknown	6		

## **Prevention Recommendations:**

### *For parents:*

- Young children require vigilant supervision.
- Keep matches, gasoline, lighters and all other flammable materials locked away and out of children's reach.
- Install smoke alarms on every level and in every sleeping area. Test them once a month. Replace batteries at least once a year.
- Plan and practice several fire escape routes from each room of the home and identify an outside meeting place. Practicing an escape plan may help children who become frightened and confused in a fire to escape to safety.

### *For community leaders and policy makers:*

- Enact laws that require smoke detectors in new and existing housing, and make landlords responsible for ensuring that rental properties have working smoke detectors.
- Enforce building codes and conduct inspections.

### *For professionals:*

- Smoke detector giveaway programs have proven useful when high risk areas are targeted. Implement such a program in your community.
- Implement a multi-faceted community campaign to prevent burn injuries. Target a well-defined population with a very specific message.

### *For Child Fatality Review Panels:*

- When reviewing a child death that is the result of a residential fire, determine if the local building code requires smoke detectors in residences, and if a working smoke detector was present in the home. Use that information to develop an action plan, such as working to change the code or pursuing prosecution of a negligent landlord. Special attention should be paid to the issue of adult supervision when investigating deaths of young children in house fires.

## **References and Resources:**

United States Fire Administration . . . . . [www.usfa.fema.gov](http://www.usfa.fema.gov)  
 National Safe Kids Campaign . . . . . [www.safekids.org](http://www.safekids.org)  
 Harborview Injury Prevention and Research Center . . . . . [depts.washington.edu/hiprc](http://depts.washington.edu/hiprc)  
 Missouri Division of Fire Safety,  
     Office of the State Fire Marshall . . . . . [www.firesafe@dfs.state.mo.us](mailto:www.firesafe@dfs.state.mo.us)

## Drownings

**24 Missouri children drowned in 2000,  
representing 9% of unintentional injury deaths.**

### Representative Cases:

- **Toddlers and young children require vigilant adult supervision when outdoors near bodies of water, such as pools, creeks and streams.**

While his mother was fixing lunch, a 14-month old wandered into the bathroom. The bathtub had been previously filled to give the toddler a bath. The victim was found by his mother. It appears he had fallen over the side of the tub and drowned.

The mother placed the baby bathtub, filled with a few inches of water, inside the family's regular tub. Leaving her five-month old infant unattended in the baby bathtub for five minutes, the mother returned to find the child floating. The 16-month old sibling had turned the faucet to the larger tub on, causing the baby to drown.

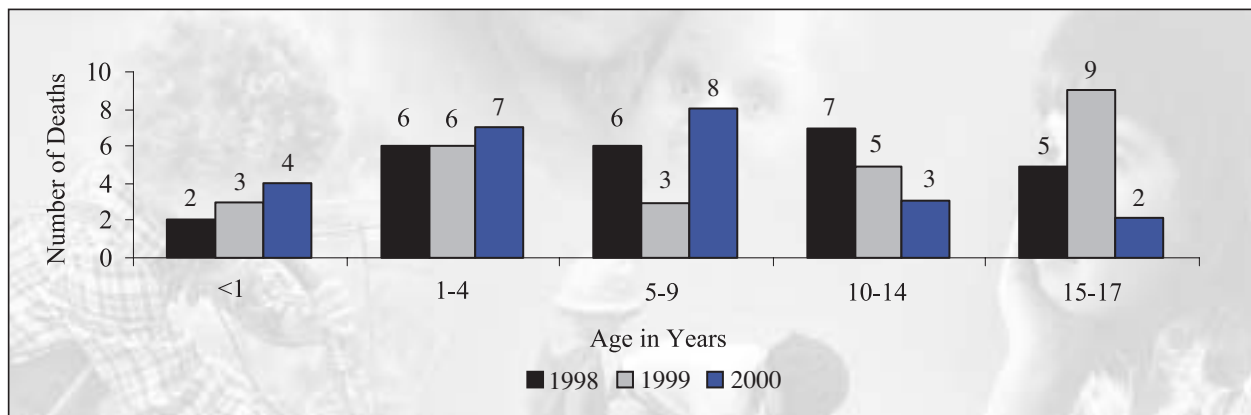
A three-year old female was found floating in an apartment complex swimming pool by her mother. The child had been playing unsupervised with other children from the complex.

- **Personal flotation devices should be worn in and around open water.**

A 17-year old drowns in the river after being swept away by the current. He had fallen into the water while fishing with friends. No one was wearing a lifejacket.

In the United States, drowning is the second leading cause of unintentional injury-related deaths among children, taking more than 1,000 young lives each year. In Missouri, drowning ranked fourth as a leading cause of injury death. Young children, age four and under, have the highest drowning death rate. Of the **24** Missouri children who drowned in 2000, **11** (46%) were age four and under; **4** of those were infants under the age of one year.

**Figure 23. Drowning Deaths by Age**





Males have a drowning rate two to four times that of female children.

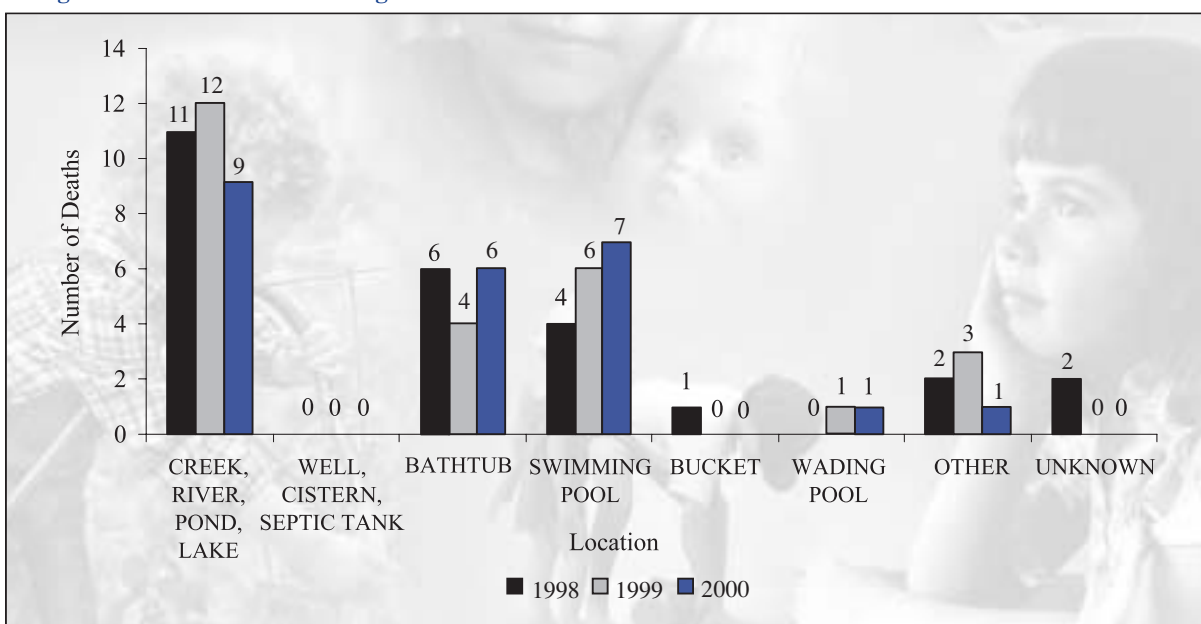
**Figure 24. Drowning Deaths by Sex and Race**

Sex	1998	1999	2000	Race	1998	1999	2000
Female	12	8	5	White	19	17	17
Male	14	18	19	Black	6	8	7
				Other	1	1	0
	26	26	24		26	26	24

Drownings among infants under the age of one, typically occur in residential bathtubs. Most drownings among children 1 through 4 years old occur in residential swimming pools. However, children can drown in as little as one inch of water and, therefore, are at risk of drowning in wading pools, buckets, toilets and hot tubs. Childhood drownings can happen in a matter of seconds and typically occur when a child is left unattended, or during a brief lapse in supervision. In the United States, young children (under age 4) have the highest drowning death rate.

Older children are more likely to drown in open water sites such as creeks, lakes and rivers. Of the **24** Missouri children who drowned in 2000, **7** (29%) occurred in swimming pools, **9** (38%) occurred in open water sites.

**Figure 25. Location of Drownings**



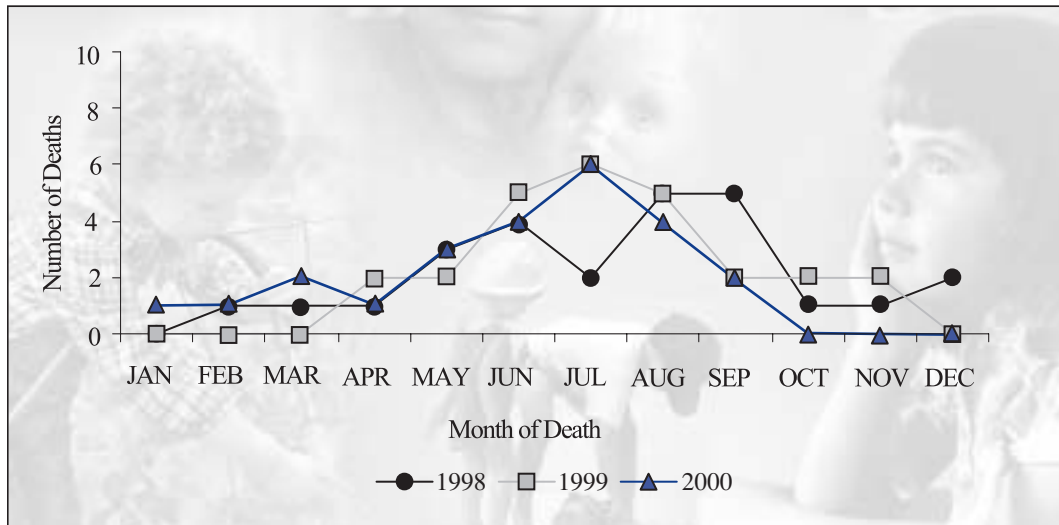
Contrary to what many people believe, drowning usually occurs quickly and silently. The scenario that a drowning person will make lots of noise while thrashing around in the water and resurface several times before actually drowning is pervasive, but entirely false.

Supervision of children in and around water is critical. Of the **17** drowning fatalities in 2000 in which supervision of the child victim was a consideration, panels found that **14** (82%) had been left unattended by their caretaker. Alcohol use by the mother was involved in one drowning death. Underage alcohol use by the teen victim was a factor in two drowning deaths.

Use of a personal flotation device is well established as an effective means to prevent drowning deaths. None of the Missouri children who drowned in 2000 were wearing a personal flotation device.

The warm-weather months of June, July, August and September are peak months for drowning, coinciding with increased activity in swimming pools and open water sites.

**Figure 26. Drowning Deaths by Month of Death**



### **Prevention Recommendations:**

#### *For parents:*

- Never leave a child unsupervised in or around water in the home or outdoors, even for a moment.
- For families with residential swimming pools: Install four-sided pool fencing with self-closing and self-latching gates. The fence should be at least four feet tall and completely separate the pool from the house and play area of the yard.
- Ensure that children always wear U.S. Coast Guard-approved personal flotation devices near open water or when participating in water sports.
- Learn CPR.

#### *For community leaders and policy makers:*

- Enact and enforce pool fencing ordinances.
- Enforce existing regulations regarding the use of personal flotation devices when boating.

#### *For professionals:*

- Parents, as well as children, should receive water safety education. This should include discussion of water hazards to children (including buckets) and the importance of vigilant supervision.
- Facilitate CPR training for parents of small children.

#### *For Child Fatality Review Panels:*

- Promote public education about drowning hazards to children and strategies to prevent drowning.

### **References and Resources:**

National Safe Kids Campaign . . . . . [www.safekids.org](http://www.safekids.org)  
 National Center for Injury Prevention . . . . . [www.cdc.gov/ncipc](http://www.cdc.gov/ncipc)  
 Harborview Injury Prevention and Research Center . . . . . <http://depts.washington.edu/hiprc>

## Unintentional Firearm Fatalities

Unintentional firearm injuries were the cause of 6 deaths of Missouri children in 2000, representing 2% of unintentional injuries.

### Representative Cases:

- **Education should be offered in all communities about gun safety. Parents should monitor children who are handling firearms.**

A 7-year old male and his 10-year old brother were playing with a .22 caliber rifle in a field adjacent to their home. They were unsupervised. The gun went off, shooting the 10-year old in the head and killing him.

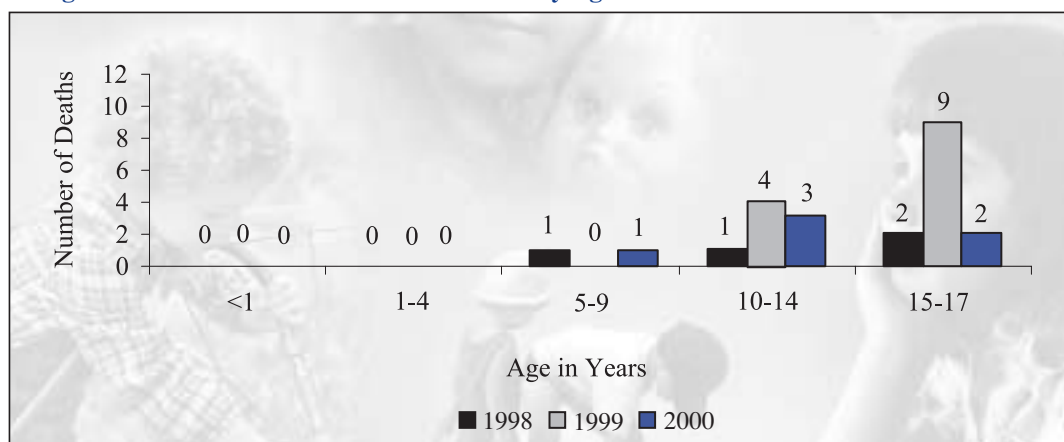
A 14-year old boy died after his 13-year old friend accidentally shot him in the chest. The boys had been target shooting in the back yard, with no adult supervision. The 13-year old was checking the gun to make sure it was empty when it went off.

- **Children always know where guns are kept! Lock guns away and store ammunition separately.**

A 17-year old male and 12-year old male were at home by themselves. They found a gun and were playing “show and tell,” when the 12-year old grabbed the gun, causing it to discharge. The 17-year old was hit, causing his death.

In the United States, nearly 70% of unintentional shootings involve children age 10-14. Of the 6 Missouri children who died in 2000 as a result of unintentional shooting, 3 (50%) were age 10-14.

Figure 27. Unintentional Firearm Fatalities by Age



Boys are far more likely to be victims of unintentional firearm deaths than girls. In the United States, nearly 80% of the children killed in unintentional shootings are male.

**Figure 28. Unintentional Firearm Fatalities by Sex and Race**

<b>Sex</b>	1998	1999	2000	<b>Race</b>	1998	1999	2000
Female	0	1	0	White	3	10	6
Male	4	12	6	Black	1	3	0
	4	13	6		4	13	6

Nationally, more than 70% of unintentional firearm shootings involve handguns. Of the **6** unintentional firearm deaths among Missouri children in 2000, **3** involved a handgun.

**Figure 29. Unintentional Firearm Fatalities by Firearm Type**

<b>Firearm Type</b>	<b>Number of Deaths</b>
Handgun	3
Rifle	2
Unknown	1
	6

### **Key factors in unintentional firearm deaths include:**

- Most unintentional childhood shooting deaths involve guns kept in the home that have been left loaded and accessible to children, and occur when children play with loaded guns.
- Unintentional shootings among children most often occur when children are unsupervised and out of school. These shootings tend to occur in the late afternoon, during the weekend, and during summer months and the holiday season.
- Nearly two-thirds of parents with school-age children, who keep a gun in the home, believe that the firearm is safe from their children. However, one study found that when a gun was in the home, 75-80% of first and second graders knew where the gun was kept.
- Generally, before age 8, few children can reliably distinguish between real and toy guns, or fully understand the consequences of their actions.
- Children as young as age 3, are strong enough to pull the trigger of many of the handguns available in the U.S.

## Prevention Recommendations:

### For parents:

- Parents who own guns should always store firearms unloaded and locked up, with ammunition locked in a separate location, out of children's reach, use gun locks, load indicators and other safety devices on all firearms.
- All parents should teach children never to touch a gun and tell an adult if they find a gun.

### For community leaders and policy makers:

- Enforce laws and ordinances that restrict access to and decrease availability of guns.
- Enact and enforce laws requiring new handguns be designed to minimize the likelihood of discharge by children.
- Enact laws outlining owner liability for harm to others, caused by firearms.

### For professionals:

- Implement gun safety education. It is important to include public education about the hazards of firearms, as one component of an overall effort to reduce the incidence of firearm injuries and deaths.

### For Child Fatality Review Panels:

- In all cases of firearm fatalities involving children, ensure that every effort is made to determine the source of the gun and consider the responsibility of the gun owner in the incident.

## References and Resources:

National Safe Kids Campaign . . . . . [www.safekids.org](http://www.safekids.org)

Harborview Injury Prevention and Research Center . . . . . <http://depts.washington.edu/hiprc>

## SECTION FOUR:

# Intentional Injury Deaths

Intentional injuries were responsible for the deaths of 77 Missouri children in 2000, representing 7% of all Missouri incident fatalities.

*Homicide* is defined as death at the hands of another person. *Suicide* is defined as death by self-inflicted means. Homicides and suicides are included in this report as intentional injury. Because this report is prevention-focused, this data is reported without regard to charges, arrests or prosecutions. This information reflects the base of knowledge compiled by local CFRP panels.

Injury deaths are reported to the Child Fatality Review Program on the Data Form 2 according to whether they were inflicted, that is, the result of an assaultive or aggressive action, and whether the injury was intentional, unintentional/accidental or unknown. The Data Form 2 also requires information about the relationship of the person inflicting the injury to the victim, and the age and race of the primary person inflicting the injury.

### Homicides

Homicide was the cause of 49 child deaths in Missouri in 2000.

#### Homicides

For the purposes of the analysis of child deaths and their prevention, homicides can be reported and discussed in terms of the relationship of the perpetrator to the victim, which places panel-reviewed deaths into three basic categories:

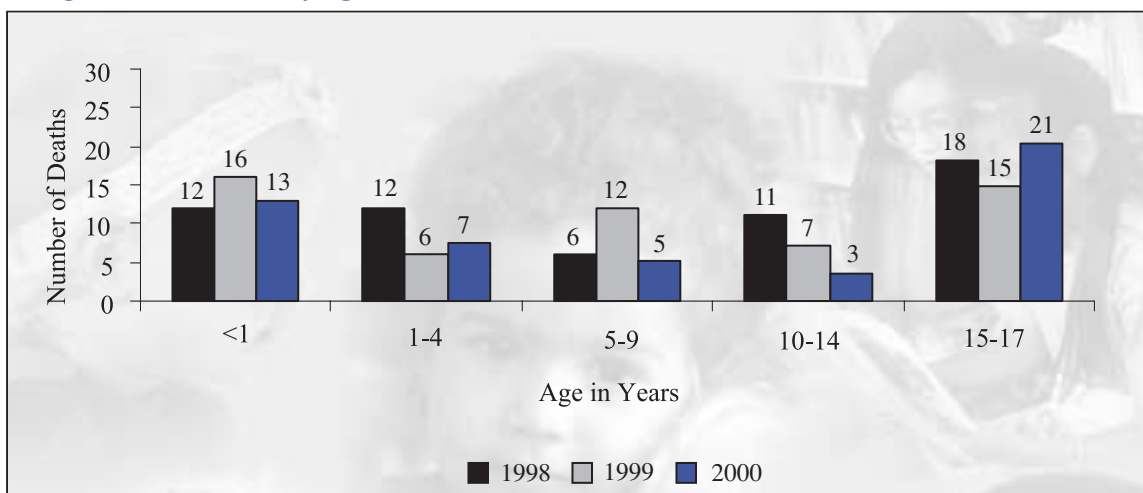
(1) *Fatal child abuse and neglect refers to the deaths of children at the hands of their parents or care-takers.* This includes both physical injury and negligent treatment. There were **22** cases of fatal child abuse and neglect reported to the Child Fatality Review Program in 2000.

(2) *Homicides involving a child victim and a peer or an adult perpetrator, not in charge of the child.* This includes teen violence, such as a gang or drug-related shooting or stabbing, and child abduction and murder. There were **19** such fatalities among Missouri children in 2000. This total includes: **15** intentional firearm deaths, **1** stabbing and **2** abductions, which culminated in murder by strangulation. The remains of a female who had disappeared in the early 1990's, at the age of 15, were discovered in June 2000. The apparent cause of death was blunt trauma.

(3) *Deaths involving criminal or negligent behavior, in which the child was not an intended victim.* Examples include motor vehicle crashes involving drugs, alcohol, other criminal behavior and arson. There were **2** arson deaths and **6** motor vehicle fatalities in this category. The motor vehicle fatalities in this category include **4** alcohol-related fatalities, **1** pedestrian death and **1** carjacking incident.

The following is an overview of all homicides reported to the Child Fatality Review Program and reviewed by county-based panels. Fatal child abuse and neglect (including Shaken Baby Syndrome) and Intentional Firearm Injuries are detailed in the next section.

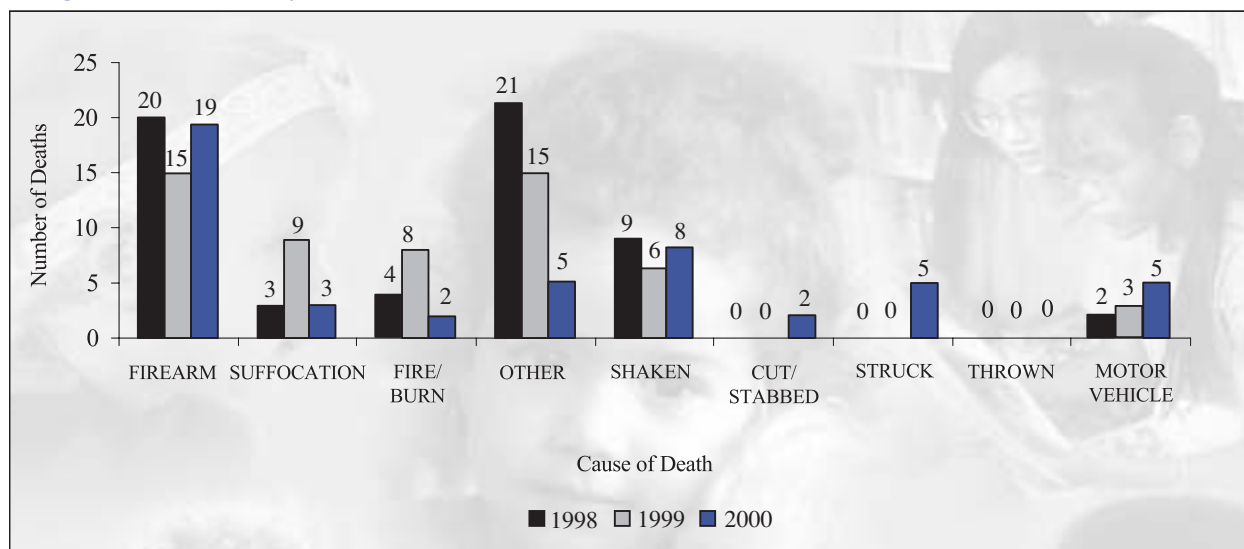
**Figure 30. Homicides by Age**



**Figure 31. Homicides by Sex and Race**

Sex	1998	1999	2000	Race	1998	1999	2000
Female	19	24	19	White	22	18	22
Male	40	32	30	Black	37	37	26
				Other	0	1	1
	59	56	49		59	56	49

**Figure 32. Homicides by Cause**





## Homicides: Intentional Firearm Fatalities

Of the 49 child homicides in Missouri in 2000, intentional firearm injuries resulted in the deaths of 19 children, representing 39% of all homicide deaths.

### Representative Cases:

- The increased availability of guns and drugs contributes to violence.

A 17-year old male and several friends were standing in front of his residence when “gang” members approached and started firing. This teen and his siblings lived with their grandmother. Their mother, a drug addict, was reported to be homeless.

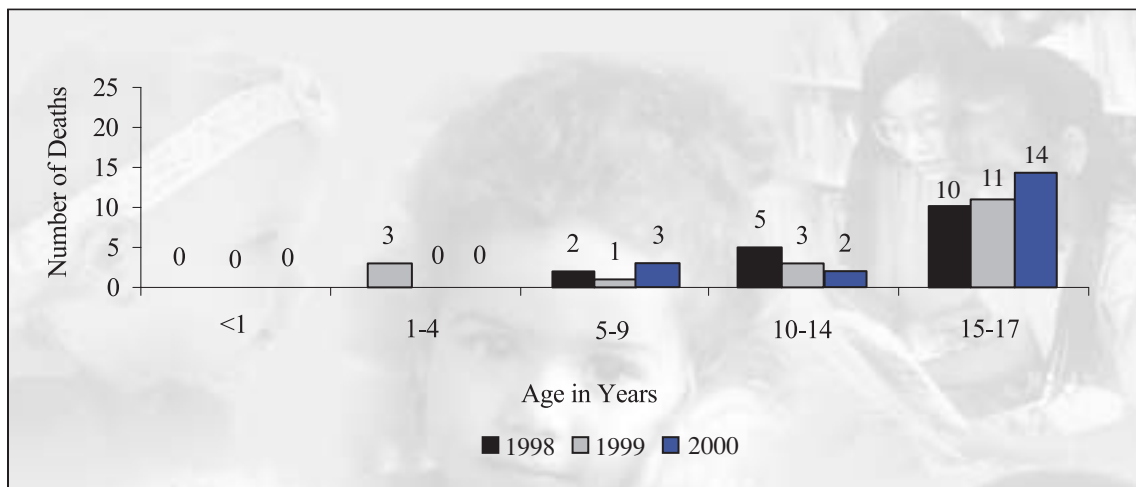
A 17-year old male was shot by a law enforcement officer while committing an armed robbery.

A 15-year old male and a teen accomplice were involved in a shooting incident. Crack cocaine was found at the scene.

- Even trivial disputes can end in death when guns are involved.

A 17-year old female was a passenger in a car that was involved in a minor traffic accident. The driver of the other car approached the passenger side of the car and shot several times, hitting the victim and wounding the driver. The adult perpetrator had served time and was on parole for a previous murder.

Figure 33. Homicide Firearm Deaths by Age



Black males continue to be at disproportionate risk.

Figure 34. Homicide Firearm Deaths by Sex and Race

Sex	1998	1999	2000	Race	1998	1999	2000
Female	3	3	4	White	2	2	5
Male	17	12	15	Black	18	13	13
				Other	0	0	1
	20	15	19		20	15	19

## Teen violence:

**Sixteen** deaths occurred due to fatal violence among Missouri adolescents in 2000. **Fifteen** involved firearms; **2** of those were shot while committing robberies.

**“It is important to keep the problem of youth violence in perspective...The current portrait of youth presented by the media is not grounded in statistical reality. The vast majority of young people do not carry weapons, do not deal drugs, do not join gangs and do not victimize their friends or neighborhoods...Most young people, like most adults, want nothing more than to lead their lives in peace.”**

***-Harborview Injury Prevention and Research Center***

Nationally, the rate of juvenile arrests for violent crime has risen sharply since the mid-1980's. Over the next 10 years (1985-1994), juvenile arrests for murder, robbery, motor vehicle theft and weapons violations far surpassed the growth in adult arrests for these crimes. The growth in juvenile homicides has been particularly disturbing. The rapid rise of gun homicides of youth coincided with the growth of crack cocaine markets in the inner city. The increased availability of guns to youth has been matched by an increased willingness to use violence to achieve one's goals. Violent confrontations are common in adolescence. If both parties are armed, the one who acts first usually gains a decided advantage. The realization that many youth on the street are carrying a weapon increases the potential for an immediate and exaggerated response to real or perceived threats. Young males commit the majority of juvenile crime and violence. With the exception of rape and domestic violence, males are also more likely to be victims of violence than females. By age 17, the risk of homicide among males is five times that of females.

Despite the changing rate and nature of juvenile violence, it is important to remember that adults are still responsible for the vast majority of crimes. Adults facilitate many juvenile crimes, as well, and sometimes take a direct role in encouraging juvenile violence.

“The causes of violence are many. The multi-faceted nature of violence almost invariably frustrates simplistic approaches to the problem. Youth violence can be prevented, but efforts must start at an early age and be sustained over time. Early childhood experiences, the nature of a child's family, the influence of peers, the neighborhood and society are keys to solving the puzzle.” (*Harborview Injury Prevention and Research Center*)

## Promising Approaches:

Individuals and organizations working to prevent firearm violence, choose and develop strategies that are specifically appropriate for them to use, depending on what aspect of the problem they would like to address. Interventions can be categorized into three basic types: educational, legal and technological/environmental.

- *Educational programs* are often carried out in the schools, community-based organizations and physicians' offices. They emphasize prevention of weapon misuse, the risks involved with possession of a firearm, and the need for conflict resolution and anger management skills.
- *Legal measures* strive to limit access to firearms-the number and type of people eligible to own or possess firearms, as well as the types of firearms that can be manufactured, owned and carried.

- *Technological/environmental interventions:* Firearm design requirements are both a technological and a legal intervention. Environmental and technological measures are based on the premise that automatic protections are more effective than those requiring specific action by individuals.

### **Violence Prevention Recommendations:**

#### *For parents:*

- Provide supervision, support and constructive activity for children and adolescents in your household.
- Access family therapy and parenting assistance, as necessary, for help with anger management skills, self-esteem and school problems.

#### *For community leaders and policy makers:*

- Support the implementation of violence prevention initiatives.
- Encourage programs that provide support, education and activities for youth.
- Support legislation that restricts access to guns by children and adolescents.

#### *For professionals:*

- Support and implement crisis interventions and conflict resolution programs within the schools.

#### *For Child Fatality Review Panels:*

- Ensure that support for victims and survivors of youth violence is available.
- Support proactive approaches to crime control, especially those programs that include efforts to confiscate illegally carried firearms.

### **References and Resources:**

National Center for Injury Prevention and Control . . . . . [www.cdc.gov/ncipc](http://www.cdc.gov/ncipc)

Harborview Injury Prevention and Research Center . . . . . <http://depts.washington.edu/hiprc>

US Department of Justice, *The Guide for Implementing the Comprehensive Strategy for Serious, Violent and Chronic Juvenile Offenders*, Office of Juvenile Justice and Delinquency Prevention  
 . . . . . <http://research.marshfieldclinic.org/children>

## Fatal Child Abuse and Neglect

**Of the 49 child homicides in Missouri in 2000, 22 (45%) children died at the hands of a parent or caretaker. Two of these children (9%) died of conditions of neglect. The remaining 20 (91%) died of inflicted injuries.**

**“In the little world in which children have their existence, Whosoever brings them up,  
There is nothing so finely preserved and so finely felt as injustice.”**

**-Charles Dickens, from *Great Expectations***

Note for the reader: The Missouri Child Fatality Review Program does not collect data under the specific heading of “Fatal Abuse” or “Child Abuse.” This data is reported as Circumstances of Death, which does include Shaken Baby Syndrome and “Other Inflicted Injury.” In order to report fatal abuse, we have assessed all homicides with reference to the relationship of the perpetrator to the victim, the circumstances and other narrative information.

Fatal child abuse is the leading cause of injury deaths among infants in the United States under the age of one year. Fatal child abuse is defined as the death of a child at the hands of their parent or caretaker. Every year in the United States, at least 2,000 children (five a day) die at the hands of their parents and caretakers. Some 18,000 children are permanently disabled and about 142,000 are seriously injured from near-fatal abuse. Domestic violence strongly correlates with abuse fatalities. An estimated 50% of homes in which there is adult violence involve child abuse or neglect. It is well documented that child abuse and neglect are underreported. (*Report of the U.S. Advisory Board on Child Abuse and Neglect*)

“It is well-documented that child abuse and neglect are underreported.” (Ewigman et al., 1993; Herman-Giddens et al., 1999) It was for this reason, better identification and investigation of child abuse and neglect deaths, that the Missouri Child Fatality Review Program was proposed initially. In the first year of the CFRP system, child abuse and neglect reports substantiated by the Division of Family Services increased substantially.

### Representative Cases:

- **Young children are more likely to die from abuse and neglect. Investigative outcomes are only as valuable as the agency follow-up and follow through..**

A three-year old female was found on the front lawn of her home by EMS personnel who had responded to a 911 call. She was covered with extensive bruising about her body, head and extremities. She died en route to the hospital from internal bleeding. The mother and her boyfriend were charged with murder. A history of abuse had been documented.

- **Multidisciplinary teams should be developed, supported and trained on the local level to investigate serious offenses against children.**

A seven-week old male died with 36 rib fractures, some fresh and others as old as three weeks. His chest had been squeezed repeatedly so that some healing fractures were broken again. He died from asphyxiation. No one was charged with this homicide.

**Representative Cases continued:**

- **Parents and caretakers must be educated about the dangers of shaking and ways to cope with crying infants.**

A five-week old male was violently shaken and struck by his 22-year old father because he would not stop crying. The child's mother was at work at the time of the incident. The infant was found to have old rib fractures, indicating prior abuse.

**“Murder is no less a crime because a child, rather than an adult, is the victim.”**

*-Unknown*

An estimated 826,000 children were victims of child abuse and neglect in the United States in 1999 (National Child Abuse and Neglect Data System-NCANDS). The loss to our society from child maltreatment is enormous. Its victims are less likely to complete school and more likely to be unemployed or underemployed. They are more often arrested for juvenile and adult crimes. The annual economic cost of child maltreatment and its consequences in the United States is conservatively estimated at \$94 billion. (*American Humane Association*)

Tragically, the children who are most often maltreated are our youngest and most vulnerable. The highest rate of abuse and neglect for children occurs in the 0-3 age group, with 13.9 confirmed cases of maltreatment for each 1,000 children. In addition, younger children more often die from neglect or abuse. According to NCANDS, of those children in the United States who suffered fatal maltreatment in 1999, 59.1% were age one or younger, and 86.1% were under 6 years of age.

All child abuse fatalities by age of victim	
<1 year	13
1 - 4 years	5
5 - 9 years	3
10 - 14 years	1
15 - 17 years	0

All child abuse fatalities by race and sex			
Females	8	White	14
Males	14	Black	8

All child abuse fatalities by cause			
Shaking	8	Stabbing	1
Other physical injury (includes blunt force trauma resulting from striking or throwing)	5	Intentional suffocation / strangulation	1
Firearm	4	Inflicted burn	0
Neglect	2	Undetermined	1

Fatal child abuse and neglect is the second leading cause of injury death among infants in Missouri, following unintentional suffocation/strangulation. **Thirteen** Missouri victims of fatal abuse/neglect were infants less than one year of age; **5** were age 1-4 years.

## Shaken Baby Syndrome

The most common mechanism of child abuse fatalities in the United States is Shaken Baby Syndrome (SBS), which involves the violent shaking of an infant or young child, usually under the age of 4 years. Babies' heads are large and heavy in proportion to their total body weight and their neck muscles are too weak to support such a disproportionately large head. Because a baby's brain is immature, it is more easily injured.

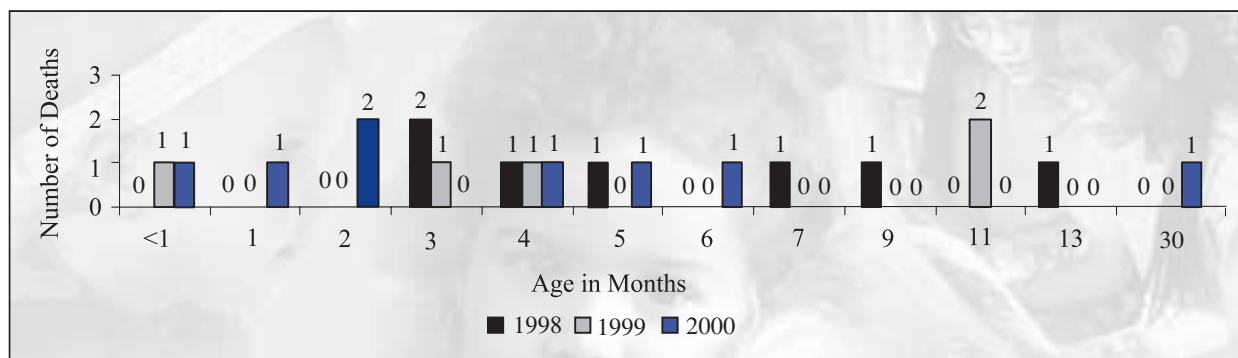
When an infant or young child is violently shaken, the head rotates wildly on the axis of the neck, resulting in rotation of the brain within the skull. Brain tissue is bruised or destroyed.

Shaken Baby Syndrome involves an *extremely violent* act. Age-appropriate play, gentle shaking to awaken an unconscious child and CPR do not cause the massive destruction seen in Shaken Baby Syndrome. Short falls from sofas, beds and changing tables, and falls associated with the caretaker falling while carrying the child, do not produce the severe brain injuries of Shaken Baby Syndrome.

Immediate consequences include a decreased level of consciousness and seizures; breathing may stop; the heart may stop and the baby may die. Shaken Baby Syndrome is so lethal that 20-25% of SBS victims die of their injuries. Long term consequences for survivors may include physical disabilities, blindness, speech disabilities, seizures, learning disabilities and death. For survivors, research has established that a significant number of SBS cases are unrecognized and underreported.

Of the **20** child abuse fatalities in Missouri in 2000, **8** (40%) were victims of Shaken Baby Syndrome. All eight victims were infants age 6 months and younger. In addition, one four-month old with a congenital abnormality died after being shaken by his father. Although there was evidence of recent inflicted head injury, it could not be determined whether the death was directly related to this injury or the result of a seizure. This infant also had unexplained fractures of the arm and clavicle. Therefore, this death is included as a child abuse fatality, but was not counted as a Shaken Baby Syndrome fatality.

Figure 35. Shaken Baby Syndrome Deaths by Age



Note: In 1999, one child is not included in this chart. Although the cause of death was SBS, the child was 9 years old.

**Figure 36. Shaken Baby Syndrome Deaths by Sex and Race**

<b>Sex</b>	1998	1999	2000	<b>Race</b>	1998	1999	2000
Female	3	3	2	White	6	3	5
Male	6	3	6	Black	3	3	3
	9	6	8		9	6	8

Deliberate shaking of an infant or young child is usually the result of frustration or anger. This occurs most often when the baby won't stop crying. Other triggering events include toilet training difficulties and feeding problems.

**Figure 37. Shaken/Impact Syndrome Deaths by Cause**

<b>Cause</b>	<b>Number of Deaths</b>
Crying	3
Feeding Difficulty	1
Unknown	4
	8

Research has established that males, fathers and other male caretakers, are the most frequent perpetrators of Shaken Baby Syndrome. The third most frequent perpetrators are child-care providers, a large, relatively unrecognized group. (Suzanne Starling, M.D., *Pediatrics*, Vol. 95, No.2, February 1995).

Six perpetrators of fatal Shaken Baby Syndrome in Missouri, in 2000, were fathers or other male caretakers. **One** was a mother, and **1** perpetrator was listed as unknown.

**Figure 38. Perpetrators of Shaken/Impact Syndrome Deaths**

<b>Perpetrator</b>	<b>Number of Deaths</b>
Mother	1
Father	5
Mother's Paramour	1
Unknown	1
	8

## Child Neglect Fatalities

The majority of unintentional fatalities and serious injury among young children are the result of a temporary lack of supervision at a critical moment. Parents and caretakers often underestimate the degree of supervision required by young children. However, children who are chronically neglected are at great risk for injury and death.



Child neglect is an act of omission, which is often fatal, due to inadequate physical protection, nutrition or health care. Neglect is sometimes apparent, as in the case of unsanitary living conditions, and sometimes nearly invisible until it is too late. Neglect is usually a slow and persistent process that damages the spirit, as well as the body of a child. Child neglect fatalities are linked closely with substance abuse and mental illness. Although physical abuse attracts more attention, neglect is more commonly reported as maltreatment. (*National Committee to Prevent Child Abuse*)

**Two** Missouri children died because of conditions of neglect that included lack of medical care, malnutrition and unsanitary living conditions. In some fatalities, negligent treatment is not the primary cause of death, but is designated as a contributory factor by the local CFRP or the Division of Family Services. CFRP panels found that **22** children who died in Missouri in 2000 suffered from various forms of inadequate care at the time of their deaths. Some deaths were found to be the result of a combination of factors of inadequate care:

Inadequate care or neglect			
Apparent lack of supervision	14	Delayed medical care	2
Apparent lack of medical care	7	Inadequate medical attention	3
Failure to thrive (non-organic)	2	Out-of-hospital birth	1
Malnutrition	3	Other	5
Dehydration	2		

The Division of Family Services accepts reports to the Central Registry for child fatalities and, when appropriate, may accept a report for investigation of child abuse/neglect. **Twenty-four** of the reports involving child fatalities, accepted for investigation by the Division of Family Services in 2000, were designated as “probable cause” findings for neglect. Neglect findings include lack of supervision (18), unsafe/unsanitary living conditions (5), medical neglect (2). (One infant was found to be a victim of lack of supervision and unsafe/unsanitary living conditions)

### Prevention of Child Abuse

Child abuse prevention can include a wide variety of efforts, such as public awareness campaigns, parent education and support services, safety education for children and therapeutic interventions for perpetrators and victims. Unfortunately, few effective primary prevention strategies have been identified for this serious cause of injury and death. (*Harborview Injury Prevention and Research Center*)

Many potential risk factors for fatal child abuse and neglect have been identified. They include young maternal age, large number of children in the household, low socioeconomic status, low educational attainment, prior substantiation of child abuse or neglect in the family, substance abuse and the presence in the household of a stepfather or other adult male not related to the child.

The most prevalent and best-researched methods to prevent child abuse over the last 30 years, have been efforts to enhance parental capacity. Home visitation models based on the work of David Olds and colleagues, are some of the best known and clearest for measurable effects. Olds suggests that high-risk families may need to be followed long-term. (Olds et al., 1986; Olds et al., 1997) Key components of the Olds model for effective home visitation programs include:

- Focus on low-income, first-time mothers.
  - Trained, experienced nurses to make home visits.
  - Home visits occur every 1-2 weeks, beginning during pregnancy and continuing until age two.
  - Home visits focus on mother's personal health and development, as well as that of the infant, involve family members and friends in the program and assist families with other community services as needed.
  - Nurses have a maximum caseload of 25 families and keep records on the families.
- (Harborview Injury Prevention and Research Center)*

### **Prevention Recommendations:**

#### *For parents:*

- Report child abuse and neglect.
- Seek crisis help through the Parent Helpline (800-367-2543) or ParentLink (800-552-8522).

#### *For community leaders and policy makers:*

- Support and fund home-visitation child abuse prevention programs that assist parents.
- Enact and enforce laws that punish those who harm children.

#### *For professionals:*

- Support and facilitate public education programs that target male caretakers and child care providers.
- Expand training on recognition and reporting of child abuse and neglect.
- Support development and training for multidisciplinary teams to investigate child abuse.

#### *For Child Fatality Review Panels:*

- The role of CFRP panels is critical in identifying fatal child abuse, protecting surviving children, and ensuring that the family receives appropriate services. CFRP panels provide important data that enhances our ability to identify those children who are most likely to be abused and intervene before they are harmed.

### **References and Resources:**

National Committee to Prevent Child Abuse . . . . . [www.childabuse.org](http://www.childabuse.org)  
 American Academy of Pediatrics . . . . . [www.aap.org](http://www.aap.org)  
 Harborview Injury Prevention and Research Center . . . . . <http://depts.washington.edu/hiprc>  
 Missouri Children's Trust Fund  
 (Missouri's Foundation for Child Abuse Prevention) . . . . . [www.ctf4kids.org](http://www.ctf4kids.org)  
 The National Center on Shaken Baby Syndrome . . . . . [www.dontshake.com](http://www.dontshake.com)  
 U.S. Department of Justice,  
 Office of Juvenile Justice and Delinquency Prevention . . . [www.ojjdp.ncjrs.org](http://www.ojjdp.ncjrs.org)

## Suicides

**Suicide was the manner of death of 28 Missouri children in 2000.**

### Representative Cases:

- **Parents and professionals responsible for children must be educated to recognize and respond to risk factors for suicide.**

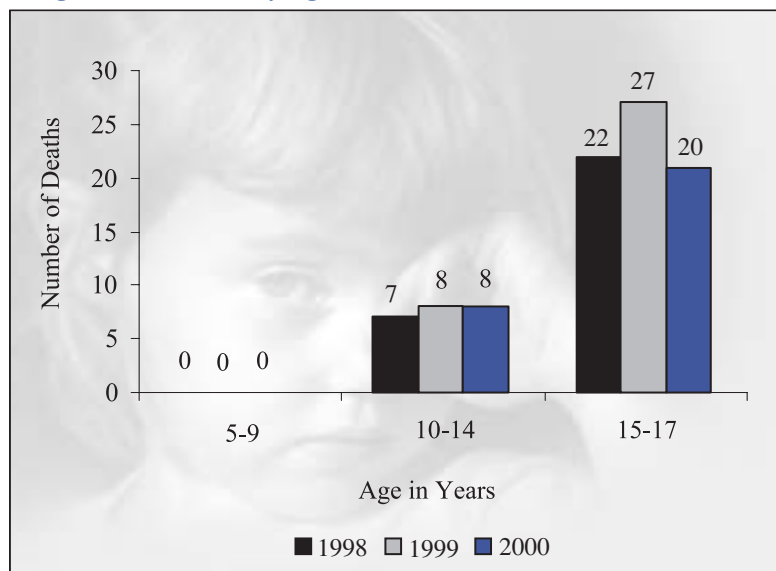
A 14-year old male with prior mental health services shot himself with a handgun. He had a history of prior attempts.

A 12-year old male, with a past medical history of depression and taking Ritalin, was found by his mother in the backyard in a club house hanging from a rafter. The subject had a history of prior attempts. He had not been taking his medication for depression or seeing his doctor because of financial restraints.

A 16-year old female was discovered by her mother hanging from a crossbeam in a shed. Several cuts were located on the decedent's wrist from prior attempts. The girl was emotionally depressed over the death of a loved one.

In Missouri and the United States, suicide is the third leading cause of death for young people following unintentional injuries and homicides. The suicide rate among young teens and young adults increased by more than 300% in the last three decades and rates continue to remain high. In Missouri in 2000, **28** children died of self-inflicted injury; **20** were age 15-17; the remaining **8** were children age 10-14.

**Figure 39. Suicides by Age**



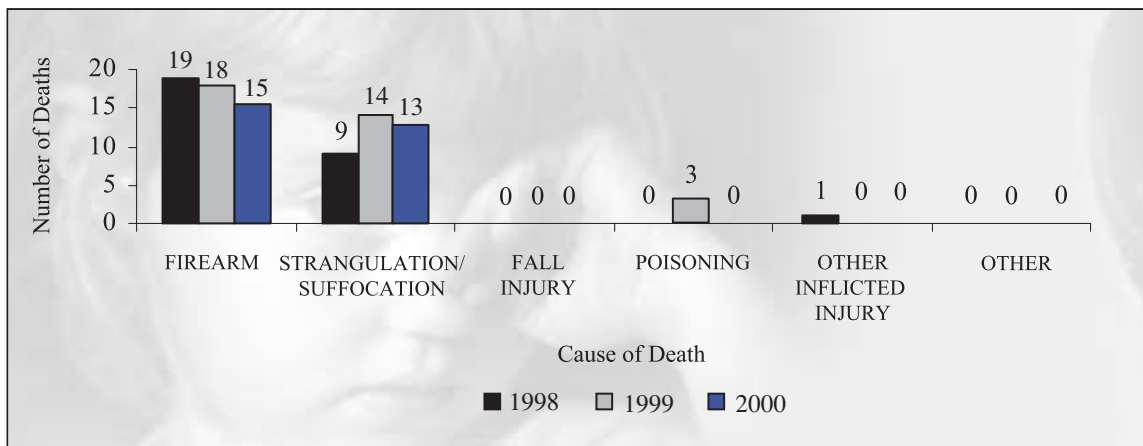
White males comprise the majority of adolescent suicide victims in Missouri. Although more females attempt suicide than males, males are approximately three times more likely to die from suicide.

**Figure 40. Suicides by Sex and Race**

Sex	1998	1999	2000	Race	1998	1999	2000
Female	12	9	4	White	27	31	24
Male	17	26	24	Black	2	4	4
	29	35	28		29	35	28

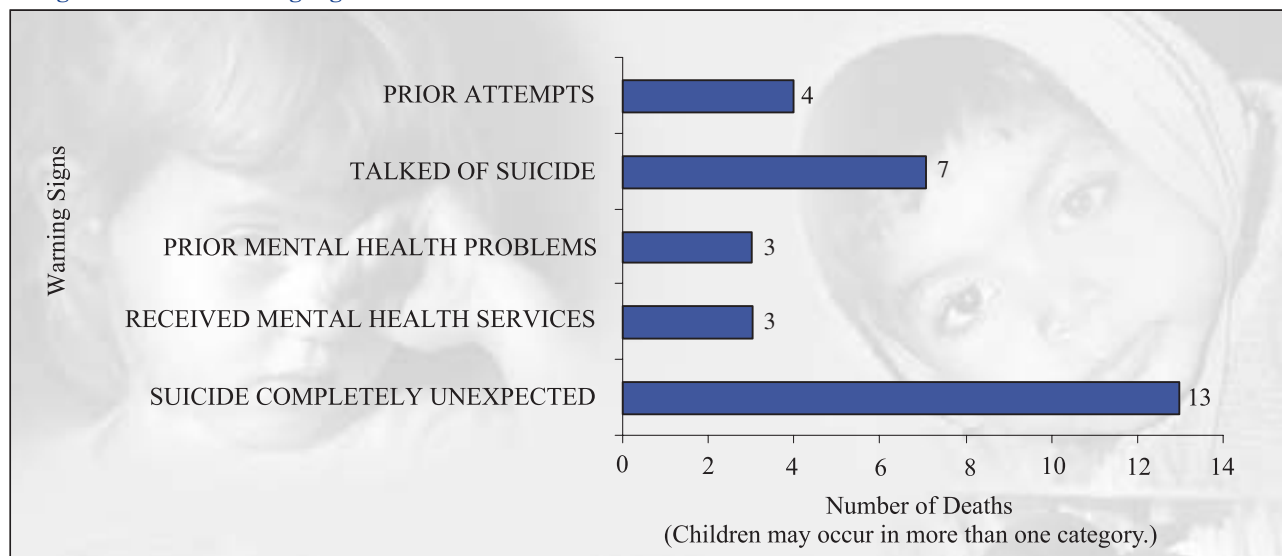
Firearms and suffocation/strangulation are the most common mechanisms of suicide among Missouri children.

**Figure 41. Suicides by Mechanism**



Of the **28** suicide victims age 17 and under, **17** (61%) had displayed warning signs.

**Figure 42. 2000 Warning Signs of Suicide**



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## **Preventing youth suicide:**

*The following information is summarized for the U.S. Public Health Service National Strategy for Suicide Prevention:*

Suicidal behaviors in young people are usually the result of a process that involves multiple social, economic, familial and individual risk factors, with mental health problems playing an important part in its development. Identified risk factors for suicide and attempted suicide for young people include: mood disorders, substance abuse, certain personality disorders, low socioeconomic status, childhood maltreatment, parental separation or divorce, inappropriate access to firearms and interpersonal conflicts or losses. Only a few studies have examined protective factors among youth for suicidal behavior. Both parent-family connectedness and perceived school connectedness have been shown to be protective against suicidal behavior.

The Surgeon General's report focuses on suicide causes, as well as aggressive intervention for people at risk of attempting it. Factors that lead to suicide are complex. Among the report's recommendations are:

- Adding more suicide prevention programs in schools.
- Increasing the number of states that require health insurance plans to cover mental health and substance abuse on the level that physical illnesses are covered.
- Encouraging doctors and nurses to ask at-risk patients about the presence of firearms, drugs and other lethal weapons in their homes.

## **Other important facts for professionals:**

- Recognition and appropriate treatment of mental and substance abuse disorders for particular high-risk age, gender and cultural groups is the most promising way to prevent suicide and suicidal behavior.
- All suicide prevention programs need to be scientifically evaluated to demonstrate whether or not they work. Most school-based, information-only, prevention programs focused solely on suicide have not been evaluated to see if they work. In fact, research suggests that such programs may actually increase distress in the young people who are most vulnerable.
- The majority of suicide attempts are expressions of extreme distress that need to be addressed, and not just a harmless bid for attention.

## Prevention Recommendations:

### For parents:

- Seek early treatment for children with behavioral problems, possible mental disorders (particularly depression and impulse-control disorders) and substance abuse problems.
- Limit young people's access to lethal means of suicide, particularly firearms.

### For community leaders and policy makers:

- Encourage health insurance plans to cover mental health and substance abuse on the level physical illnesses are covered.
- Support and implement school and community prevention programs designed to address suicide and suicidal behavior as part of a broader focus on mental health, coping skills in response to stress, substance abuse and aggressive behaviors.
- Enact and enforce laws and policies that limit young people's access to firearms and encourages responsible firearms ownership.

### For professionals:

- Children who have attempted suicide or displayed other warning signs should receive aggressive treatment attention.

### For Child Fatality Review Panels:

- Support or facilitate evidence-based suicide prevention programs in your community.
- In reviewing a possible suicide, consider carefully the warning signs and history of the victim. Consider, also, points of early intervention that can be enhanced in your community to prevent other suicides and suicidal behaviors.

## Prevention Research and Information:

National Strategy for Suicide Prevention . . . . . [www.mentalhealth.org/suicideprevention](http://www.mentalhealth.org/suicideprevention)

American Association of Suicidology . . . . . [www.suicidology.org](http://www.suicidology.org)

## SECTION FIVE:

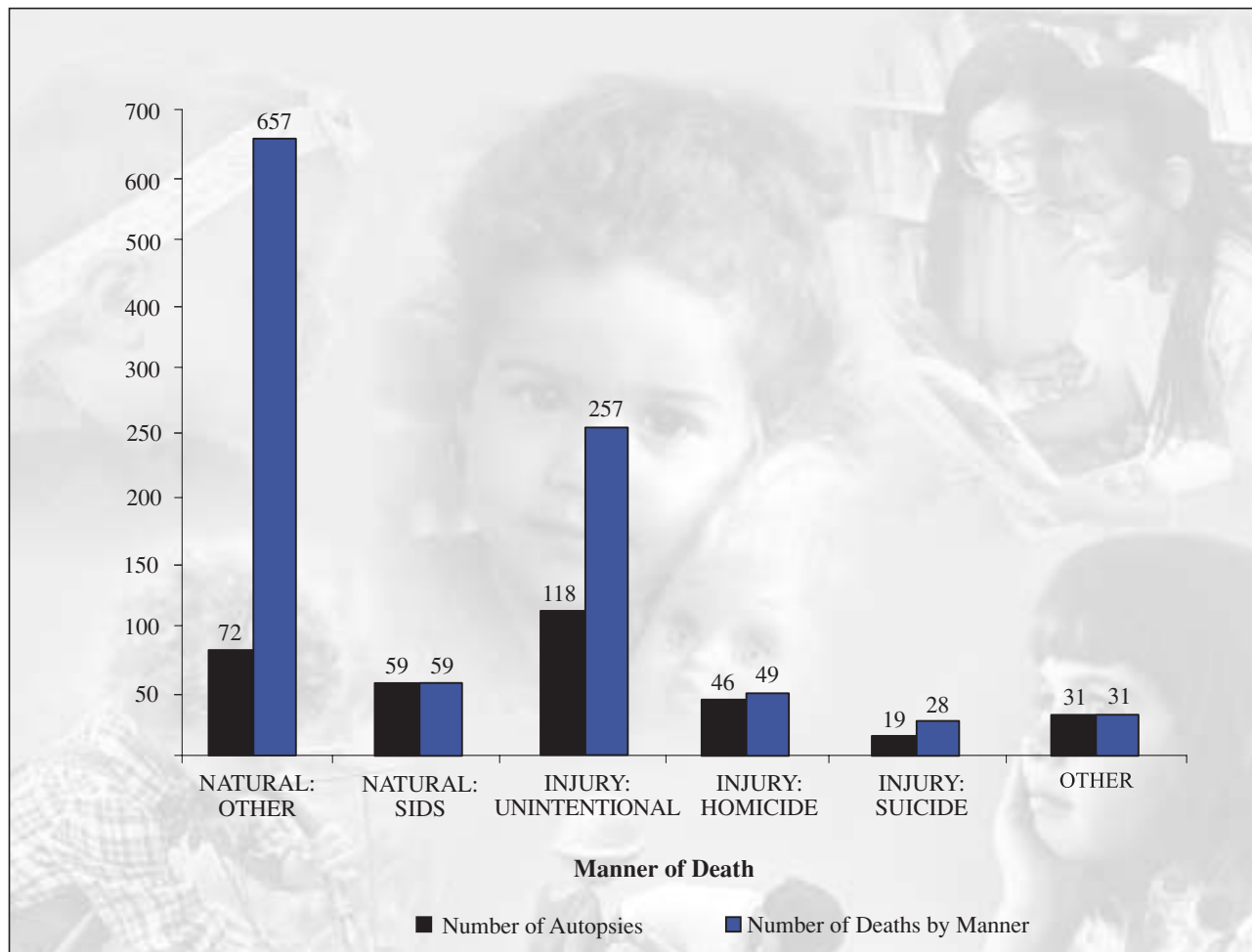
### Appendices

#### Appendix 1. Autopsies

The autopsy is a critical component in accurately determining the cause of death, especially in the case of sudden infant deaths. RSMo 194.117 requires that an autopsy be performed for all children from 1 week to 1 year of age who die in a sudden, unexplained manner.

Missouri's Certified Child-Death Pathologist Network ensures autopsies performed on children, birth through age 17, are performed by professionals with expertise in forensic pediatrics. Additionally, Network members are available to consult with coroners and others investigating child deaths. A listing of network members can be obtained through STAT or on the Internet at [www.dss.state.mo.us/stat/cpn.htm](http://www.dss.state.mo.us/stat/cpn.htm)

Figure 43. Number of Autopsies by Certified Child Death Pathologist for 2000





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## Appendix 2. Mandated Activities for Child Fatalities

Every county must have a multidisciplinary child fatality review panel (114 counties and City of St. Louis).

The county panel must consist of at least the following seven core members: prosecuting attorney, coroner/medical examiner, law enforcement representative, Division of Family Services representative, public health representative, juvenile officer and emergency medical services representative. Panels may elect to have additional members.

All deaths, ages birth to 17, must be reported to the coroner/medical examiner.

Children, age one week to one year, who die in a *sudden, unexplained* manner must have an autopsy.

A state CFRP must meet at least twice per year to review the program's progress and identify systemic needs and problems.

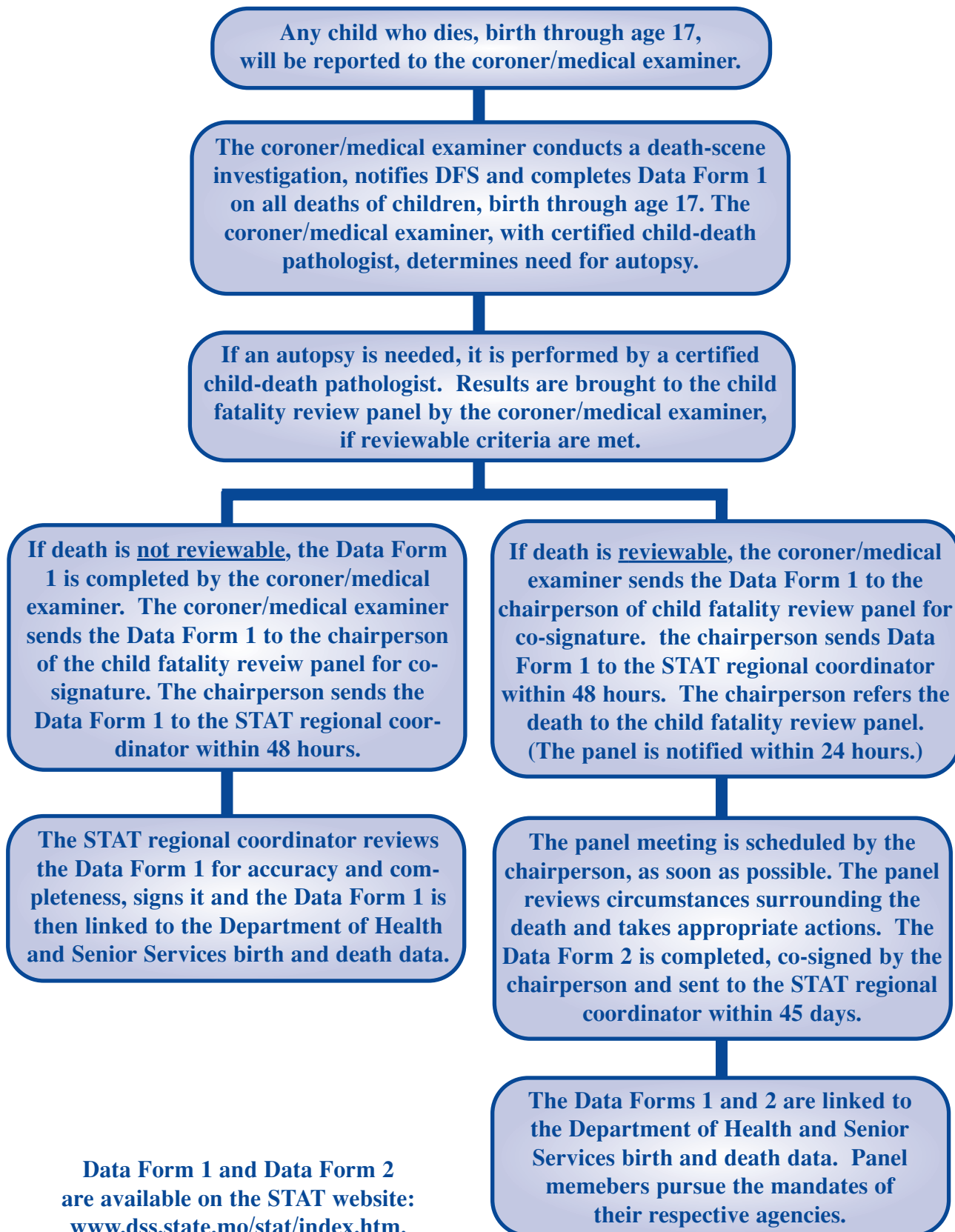
Panels must use uniform protocols and data collection forms.

Certified child-death pathologists must perform the autopsies.

Knowingly violating reporting requirements is a Class A misdemeanor.

When a child's death meets the criteria for review, activation of the panel must occur within 24 hours of the child's death, with a meeting scheduled as soon as practical.

## Appendix 3. Review Process



## Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 1998-2000

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census Population
	1998	1999	2000	1998	1999	2000	1998	1999	2000	
ADAIR	4	2	0	0	1	0	1	0	0	4,850
ANDREW	3	2	4	1	2	2	2	2	1	4,152
ATCHISON	1	0	1	0	0	0	1	0	0	1,560
AUDRAIN	3	1	6	2	0	3	1	0	3	6,094
BARRY	3	5	3	1	3	1	1	3	3	8,463
BARTON	1	3	0	1	2	0	1	2	0	3,286
BATES	4	0	3	2	0	3	3	0	3	4,203
BENTON	4	1	3	3	1	3	2	0	3	3,673
BOLLINGER	4	2	1	1	1	0	1	1	0	3,144
BOONE	50	48	50	7	12	15	9	9	10	29,868
BUCHANAN	15	14	14	8	2	8	4	3	7	21,051
BUTLER	7	15	9	4	9	5	0	5	3	10,287
CALDWELL	2	3	1	0	3	1	0	1	1	2,377
CALLAWAY	7	1	9	2	0	4	4	0	4	9,805
CAMDEN	6	6	6	4	1	3	4	2	2	7,276
CAPE GIRARDEAU	6	9	10	1	3	0	1	1	1	15,960
CARROLL	1	2	0	0	1	0	1	1	0	2,634
CARTER	5	6	0	3	4	0	3	4	0	1,717
CASS	6	1	11	4	0	5	4	1	4	23,542
CEDAR	1	1	2	1	1	2	0	0	2	3,155
CHARITON	1	1	1	1	1	0	1	1	1	2,186
CHRISTIAN	5	3	6	2	1	3	4	2	3	14,408
CLARK	0	0	0	0	0	0	0	0	0	1,968
CLAY	26	29	23	17	18	12	14	13	5	45,300
CLINTON	4	1	4	3	0	0	3	0	3	5,442
COLE	13	10	21	11	7	10	10	7	8	17,082
COOPER	1	1	1	0	0	0	1	0	0	3,900
CRAWFORD	2	4	6	0	3	5	2	2	6	6,002
DADE	2	0	0	1	0	0	1	0	0	2,006
DALLAS	2	2	4	1	0	3	0	2	2	4,259
DAVIESS	1	1	2	1	1	1	1	0	1	2,200
DE KALB	0	1	2	0	1	2	0	1	2	2,289
DENT	1	4	0	0	2	0	0	3	0	3,753
DOUGLAS	1	7	0	1	5	0	1	6	0	3,225
DUNKLIN	7	7	10	4	6	5	2	3	2	8,686
FRANKLIN	16	15	12	13	12	6	10	10	5	26,174
GASCONADE	3	2	2	2	0	1	3	2	2	3,701
GENTRY	1	0	1	1	0	0	1	0	0	1,716
GREENE	48	52	52	13	14	6	8	13	7	51,264
GRUNDY	0	2	1	0	0	0	0	1	1	2,367
HARRISON	3	1	1	2	0	1	1	0	1	1,931
HENRY	3	2	6	1	1	4	1	1	4	5,187
HICKORY	0	0	1	0	0	0	0	0	1	1,703
HOLT	0	1	0	0	1	0	0	1	0	1,430

## Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 1998-2000

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census Population
	1998	1999	2000	1998	1999	2000	1998	1999	2000	
HOWARD	1	0	0	0	0	0	0	0	0	2,411
HOWELL	8	3	8	2	1	4	4	2	5	9,349
IRON	0	2	3	0	2	3	0	2	2	2,947
JACKSON	173	171	130	72	84	65	38	49	32	167,262
JASPER	14	14	11	10	6	3	6	2	6	25,458
JEFFERSON	19	23	29	15	18	18	14	13	15	57,576
JOHNSON	3	8	6	0	4	4	2	6	4	11,910
KNOX	2	4	1	0	3	1	0	4	0	1,027
LACLEDE	2	4	5	2	3	4	1	2	1	8,365
LAFAYETTE	6	3	5	3	2	4	5	3	4	8,624
LAWRENCE	3	6	8	3	2	4	2	2	3	9,016
LEWIS	3	0	2	3	0	0	3	0	2	2,374
LINCOLN	3	10	10	3	8	6	2	8	4	11,158
LINN	1	2	0	1	2	0	1	1	0	3,496
LIVINGSTON	2	5	1	0	2	1	0	2	0	3,425
MCDONALD	7	5	8	3	0	8	4	4	5	5,576
MACON	1	1	2	0	0	2	0	0	0	3,839
MADISON	2	3	1	1	1	1	2	2	0	2,981
MARIES	3	3	1	2	2	1	3	1	1	2,167
MARION	6	0	3	2	0	1	2	0	1	7,545
MERCER	0	0	1	0	0	1	0	0	1	923
MILLER	4	3	3	1	2	1	2	3	1	6,115
MISSISSIPPI	3	1	4	2	1	2	1	0	2	3,885
MONITEAU	2	5	6	1	3	6	1	3	5	3,696
MONROE	2	4	3	1	1	1	2	1	2	2,503
MONTGOMERY	3	0	3	1	0	2	3	0	2	3,206
MORGAN	0	2	2	0	2	1	0	2	0	4,330
NEW MADRID	5	4	2	3	1	0	4	2	2	5,881
NEWTON	18	19	20	4	2	6	4	3	6	12,996
NODAWAY	1	1	2	0	1	0	0	1	2	4,557
OREGON	0	3	2	0	0	1	0	3	0	2,444
OSAGE	0	1	2	0	1	0	0	0	2	3,465
OZARK	2	0	2	2	0	2	2	0	1	2,272
PEMISCOT	1	7	6	1	4	2	0	2	1	6,773
PERRY	2	5	3	2	1	3	0	3	3	4,939
PETTIS	2	10	5	2	8	3	2	7	2	9,628
PHELPS	6	10	12	4	6	6	3	7	8	9,177
PIKE	1	3	2	0	0	1	0	2	0	4,406
PLATTE	5	6	17	3	3	3	1	1	3	18,240
POLK	5	4	5	1	2	0	4	4	2	6,298
PULASKI	5	11	4	2	6	2	3	4	2	11,381
PUTNAM	0	0	1	0	0	0	0	0	1	1,098
RALLS	1	2	1	0	2	1	0	2	1	2,438
RANDOLPH	1	7	2	0	4	1	0	4	1	5,875
RAY	5	2	2	2	2	0	4	0	1	6,698
REYNOLDS	1	0	0	0	0	0	0	0	0	1,710
RIPLEY	3	3	1	2	3	1	2	2	1	3,799

## Appendix 4. Missouri Incident Child Fatalities (Age less than 18) by County 1998-2000

County of Event	All Deaths			Reviewed Deaths			Injury Deaths			Census Population
	1998	1999	2000	1998	1999	2000	1998	1999	2000	
ST CHARLES	20	24	31	13	17	15	8	14	9	81,532
ST CLAIR	1	3	1	1	0	1	1	3	0	2,146
ST FRANCOIS	4	6	14	2	5	11	3	2	3	14,043
ST LOUIS COUNTY	202	182	186	55	54	62	30	24	26	238,791
STE GENEVIEVE	2	2	3	1	0	1	1	1	2	4,749
SALINE	5	2	3	3	1	1	3	1	1	5,758
SCHUYLER	1	0	1	1	0	0	1	0	1	1,118
SCOTLAND	0	0	1	0	0	0	0	0	0	1,264
SCOTT	12	8	7	2	1	4	1	0	4	11,544
SHANNON	2	0	0	0	0	0	1	0	0	2,192
SHELBY	0	1	1	0	0	1	0	0	1	1,771
STODDARD	2	4	3	2	2	2	2	2	2	7,283
STONE	3	0	4	2	0	4	2	0	1	5,902
SULLIVAN	1	0	1	0	0	0	1	0	0	1,578
TANEY	2	1	6	1	0	3	0	0	5	7,609
TEXAS	4	3	6	2	2	2	2	1	3	5,882
VERNON	2	7	3	2	2	1	1	1	1	5,121
WARREN	1	4	2	1	2	2	0	2	2	7,033
WASHINGTON	5	1	2	4	0	1	4	0	1	6,760
WAYNE	3	0	1	1	0	1	2	0	0	3,005
WEBSTER	7	4	4	2	2	1	2	2	2	8,490
WORTH	0	0	0	0	0	0	0	0	0	566
WRIGHT	3	1	5	1	0	2	3	1	1	5,621
ST LOUIS CITY	244	212	160	52	65	70	29	36	31	89,219
<b>TOTAL</b>	<b>1,136</b>	<b>1,113</b>	<b>1,081</b>	<b>423</b>	<b>467</b>	<b>475</b>	<b>331</b>	<b>352</b>	<b>334</b>	<b>1,399,492</b>

## Appendix 5. Missouri Incident Child Fatalities (Age less than 18) by Age, Sex and Race 1998-2000

Characteristic	All Deaths			Reviewed Deaths			Injury Deaths		
	1998	1999	2000	1998	1999	2000	1998	1999	2000
<b>Age of Child</b>									
0	678	664	616	166	176	192	41	45	44
1	44	34	32	23	21	17	17	14	9
2	30	21	31	17	15	22	18	10	17
3	23	21	25	13	10	19	12	7	14
4	21	9	12	10	5	8	10	6	7
5	17	12	21	7	8	13	9	5	13
6	12	18	21	8	12	13	8	11	12
7	22	12	20	14	9	11	15	9	11
8	16	17	17	5	9	10	8	11	10
9	11	9	16	7	4	8	7	4	6
10	17	16	22	10	10	12	8	9	10
11	16	18	14	11	11	10	12	9	7
12	14	21	13	9	14	10	9	12	7
13	18	16	20	11	11	13	9	9	12
14	34	24	35	21	19	15	21	21	22
15	36	46	37	22	31	26	30	37	24
16	56	72	63	26	44	33	40	61	52
17	71	83	65	43	58	42	57	72	56
21*	0	0	1	0	0	1	0	0	1
<b>TOTAL</b>	<b>1,136</b>	<b>1,113</b>	<b>1,081</b>	<b>423</b>	<b>467</b>	<b>475</b>	<b>331</b>	<b>352</b>	<b>334</b>
<b>Sex of Child</b>									
Male	657	673	618	251	302	275	205	236	215
Female	479	440	463	172	165	200	126	116	119
<b>TOTAL</b>	<b>1,136</b>	<b>1,113</b>	<b>1,081</b>	<b>423</b>	<b>467</b>	<b>475</b>	<b>331</b>	<b>352</b>	<b>334</b>
<b>Race of Child</b>									
White	781	770	787	282	304	320	250	266	262
Black	346	328	284	140	156	152	79	82	69
Other	9	11	6	1	5	1	2	3	2
Unknown	0	4	4	0	2	2	0	1	1
<b>TOTAL</b>	<b>1,136</b>	<b>1,113</b>	<b>1,081</b>	<b>423</b>	<b>467</b>	<b>475</b>	<b>331</b>	<b>352</b>	<b>334</b>

\* Child disappeared at age 15, remains were found 6 years later in 2000



## Appendix 6. Definitions of Important Terms and Variables

### Certified Death:

Death included in the Department of Health, Missouri Center for Health Statistics (MCHS) mortality file, **reported by the death certificate.**

### Missouri Incident Death:

Death within Missouri of a child younger than 18 years. On the basis of data from the CFRP Data Form 1 or Data Form 2, one of the following is true:

- The child died as a result of an injury which occurred in Missouri.
- The child died as a result of a natural (non-injury) cause which occurred, or is assumed to have occurred, within Missouri. (This excludes deaths due to illness or other natural cause which occurred outside Missouri; e.g., at a non-Missouri residence.)
- The child was born in Missouri and died as a newborn (within ten days of birth) without having left the state. (Such children are included regardless of the assumed place of occurrence of the cause of death or of the residence of the child or the child's family.)

Missouri incident is determined by use of data reported on Data Form 1, and no death is considered a Missouri-incident death until Data Form 1 has been received.

### CFRP Cause of Death:

Cause of death as reported on CFRP Data Forms 1 and 2. The forms include a category for natural cause, which specifies malnutrition/dehydration, delayed medical care, apparent lack of supervision and known illness (which includes congenital anomalies and perinatal conditions), Sudden Infant Death Syndrome (SIDS), sudden unexplained death (as defined elsewhere) and injuries classified by the type of agent or force which caused the injury (i.e., vehicular, drowning, firearm, fall, poisoning). The CFRP classification provides no indication of whether the injury was intentional; thus, homicide is not included as a cause in this system. The CFRP does provide for an indication of whether or not the injury was inflicted, that is, whether it occurred as a result of the action of another person, without regard to intent or purpose of the action. If the case is referred to the CFRP panel for review, Data Form 2 is completed to report the findings of the panel. The Data Form 2 report includes information on DFS findings regarding possible child abuse and neglect and information related to criminal proceedings.

### Mortality File Cause of Death:

The Department of Health Mortality File lists cause of death as reported by the ICD-10 code on Missouri death certificates. The ICD-10 coding classification system includes natural causes such as various diseases, congenital anomalies, perinatal conditions and certain ill-defined conditions (which includes SIDS). The injury classification includes those identified as "accidents" (unintentional), those considered intentional (homicide, suicide) and those with undetermined intent. Injury deaths are further classified by the type of agent or force which caused the injury (i.e., motor vehicle crash, firearm, poisoning, burn, fall, drowning).

### Mortality File Manner of Death:

Cause of death reported in mortality file was formatted to conform to "Manner of Death" variable in the death certificate. This includes six categories based on the ICD-10 code: Natural; Accident (unintentional injury); Suicide; Homicide; Undetermined; and Pending Investigation.



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## Appendix 6. Definitions of Important Terms and Variables

### Sudden Infant Death Syndrome (SIDS):

Sudden death of an infant under one year of age which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene and review of clinical and social history.

- Mortality File SIDS: Death by SIDS, as defined operationally by being reported in the mortality file associated with the ICD-10 code 7980.
- CFRP SIDS: Death by SIDS, as defined operationally by being reported in the CFRP file, from Data Form 1 and Data Form 2, as due to SIDS.

### Sudden, Unexplained Death:

Sudden death of an infant less than one year of age due to unexplained cause, suggesting SIDS but not yet having the postmortem examination, scene investigation or review of social and medical history needed for SIDS designation. Defined operationally by being reported as sudden, unexplained death in Data Form 1.

### Reviewable Death:

Death which has been reported by Data Form 1 as requiring review by the CFRP panel, whether or not the review has yet been completed and reported. The Data Form 1 report is required for all child deaths that occur in Missouri, and includes an indication of whether a review of that death will be required. If Data Form 1 indicates a reviewable death, Data Form 2 should be completed after the review.

### Reviewed Death:

Death that has been reviewed by a local CFRP panel and reported on Data Form 2.

### Mortality File County of Death:

The county, reported in the mortality file, in which the death was officially recorded. May be a Missouri or non-Missouri county.

### CFRP County of Death:

The county, reported by the Data Form 1 and Data Form 2, in which the death occurred. Only deaths in Missouri are included in the CFRP database.

### CFRP County of Incident:

The county, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred. If the county of incident is a Missouri county, the death is by definition a Missouri incident death. If the county of incident is outside the state of Missouri, the death is by definition not a Missouri incident death. If the county is in Missouri, but the county of incident is not, only identifying information (Section A of Data Form 1) is requested.

### CFRP County of Residence:

The county, reported by Data Form 1 or Data Form 2, as the county of decedent's residence may be a Missouri or non-Missouri county. If the child is a newborn, the newborn's county of residence is the mother's county of residence.

### CFRP Region:

Location, reported by Data Form 1 and Data Form 2, in which the fatal illness, injury or event occurred, formatted to conform to the seven geographic regions defined for the CFRP program.

## Appendix 6. Definitions of Important Terms and Variables

### Child Abuse/Neglect (CA/N):

Death for which the Division of Family Services (DFS) reports substantiated child abuse or neglect. Substantiation may result from DFS investigation or court adjudication. As a cause of death, abuse refers to physical, sexual or emotional maltreatment or injury inflicted on a child, other than accidentally, by those responsible for the child's care, custody and control, except that discipline, including spanking, administered in a reasonable manner, shall not be construed to be abuse. Neglect refers to failure by those responsible for the child's care, custody and control to provide the proper or necessary support, education, nutrition, medical care or other care necessary for the child's well-being.

### Unsupervised Death:

Death for which data from Data Form 1 and Data Form 2 suggest that the decedent, due to age and/or ability, may not have had adequate supervision at time of the fatal injury or death event. Defining variables include reports that the event was unwitnessed, that the caretaker was asleep at the time (except during normal sleeping hours), that the caretaker was incapacitated due to alcohol or drugs, or that there was no adult caretaker.

### Mortality File Abuse/Neglect:

Death for which the ICD-10 code in the mortality file indicates abuse or neglect. Relevant ICD-10 codes are 904.0, 967 and 968.4. these abuse/neglect deaths are usually under-reported relative to those reported by DFS as substantiated child abuse or neglect.

### Mortality File Homicide (death caused by another) Death:

Death due to homicide, as reported by ICD-10 codes 960-979. Homicide is not defined on Data Forms 1 or 2. Child abuse/neglect deaths as determined by DFS are not necessarily coincidental with homicides, since CA/N deaths, by definition, are committed by a caretaker who has care, custody or control of the child at the time.

### Mortality File Suicide Death:

Death due to suicide, as reported by ICD-10 codes 950-959.

### Mortality File Autopsy:

Indication from mortality file that decedent was autopsied.

### CFRP Autopsy:

Indication from CFRP file that decedent was autopsied and how the autopsy was paid for.

### Maltreatment Death:

Death operationally defined as being due either to homicide, as reported in the mortality file, or to substantiated child abuse/neglect, as reported by DFS.

### Violent Death:

Death operationally defined as being due either to homicide (including those homicides due to child battering or other maltreatment).

# State Technical Assistance Team

## Child Fatality Review Program

2724 Merchants Drive

Jefferson City, MO 65109

(573) 751-5980

800-487-1626

Region 1  
Vern Taylor  
STAT Investigator  
Regional Coordinator

Region 2  
John Steinmeyer  
STAT Investigator  
Regional Coordinator

Region 6 & 7  
St. Louis County/ St.  
Louis City  
Dan Stewart  
STAT Investigator  
Regional Coordinator

Debra McDermott  
Metro Case  
Coordinator

Region 5  
Jackson County  
Mac McMillan  
STAT Investigator  
Regional  
Coordinator

Jerry Holder  
Metro Case  
Coordinator

Region 4  
Tommy Capps  
STAT Investigator  
Regional Coordinator

Region 3  
Larry Wyrick  
STAT Investigator  
Regional Coordinator

